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WHEELS FOR THE MIND

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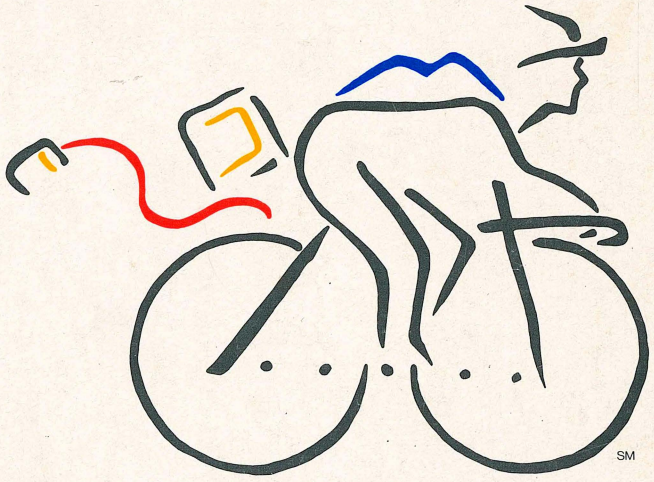

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Editorial

Welcome to the third issue of **Wheels for the Mind**. As you can see, the format is changing once again. There are several new features that may be of interest to you.

First, this publication will now be quarterly, with issues planned for fall, winter, spring and summer. This will allow us to incorporate more of your feedback into each issue.

We will be trying to utilize more graphics in the publication (but only when they contribute to what is being discussed).

This issue was entirely prepared on a LaserWriter™ printer using a prerelease version of PageMaker (by Aldus Corporation, Seattle, WA).

A publication developed for ALL schools.

Beginning with this issue, we will be covering topics of interest to **all schools** (not just AUC institutions). This will include our international friends, University Purchase Program schools, and all educational institutions that wish to become more involved with the use of the Macintosh™. We extend an invitation to all schools to share with us the projects that they are working on, their reactions to hardware and software developments, and their experiences with the Macintosh in the academic environment.

If you wish to send along an article, project status report, or other submission, forward it to:

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Share YOUR experiences (preferably on disk).

Please try to send a disk with your words of wisdom, articles, applications, experiences, or software. Screen dumps are great, and you are encouraged to include them. All disks will be returned. Of course, you can also send along written material if you like. It's just that disks are easier to handle at this end.

The success of this publication depends a lot on the participation and support of all of you. Please contribute: Don't wait for someone else—do it yourself.

P.S. Many thanks to Jerry Keough of Boston College for his help with this issue.

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Dialog Box

The "DIALOG BOX" section will present articles on a wide variety of topics. They may include descriptions of local area networks, strategies for involving faculty in microcomputing, new course designs, outlines of seminars, suggestions for Apple Computer, or whatever you wish. Please participate. Write something for us and share it with our community of Macintosh users.

Educating Faculty: Strategies and Techniques

Faculty members want to learn more about computers.

Many faculty members have a keen desire to learn more about microcomputers but sometimes find themselves in an awkward position. They are not sure how to become involved or from whom they can get appropriate information. When you add to this the fact that their students often are much more computer literate than they, it can create an uncomfortable situation. Of course, many faculty members from the technical and computer-oriented disciplines have little or no problem adapting to new technologies. For the vast majority of teachers, however, it is not an easy task.

University administrators who wish to encourage faculty computer use can take some practical steps toward this end. The suggestions that follow are neither collectively exhaustive nor mutually exclusive. Rather, they present a variety of ways in which to encourage faculty members to apply technology to their everyday tasks.

Start with some computer seminars for faculty.

1. SEMINARS. One very useful strategy is to regularly schedule seminars that are designed to provide information about computers to the faculty at large. These can be from one to three days in length and might be presented several times throughout the year. (Some schools have found it particularly useful to hold these sessions between terms.) The key factor here is that they be taught by great teachers (a teacher of teachers has a rough task). Remember, the vast majority of attendees are not necessarily computer oriented. Thus, it is important to have someone who communicates well in a nontechnical fashion. Topics for these sessions might include:

- **General Computer Literacy**—covering hardware, software, storage, terminology. (2 hours or more)
- **Introduction to Microcomputers**—covering different hardware options, software demos, costs, limitations and more. (2 hours)
- **Specific software learning sessions**—suggestions follow. (Half to full day)

Spreadsheets have many applications.

Using a spreadsheet. This might be designed with a specific department in mind such as Finance or Accounting or it might simply focus on miscellaneous spreadsheet applications, such as faculty gradebooks, budget managing, and so on. (Full day)

Introduction to Word Processing. Faculty members usually do not type well. Consequently, word-processing applications are of tremendous interest to them. This is often the first microcomputer application that faculty members get serious about. Interest will center around preparation of professional articles, grant proposals, course outlines, and exams. Concentrate on different format options, incorporating graphics with text, and printing strategies. (Full day)

Preparing Graphs and Charts. Pictorial representation of data is a very effective way of communicating. Some time should be spent on the ways in which numeric data (perhaps data from a spreadsheet) can be displayed as a chart or graph. (Half day)

Using a Data-Base System. All faculty members keep data of some sort. The basic principles of data-base management should be explained, along with relevant applications. These applications could include maintaining student records, keeping bibliographic references, and preparing mailing lists. (Half day)

Telecommunications. Most campus computer facilities have mainframes as well as microcomputers. Faculty members are often interested in what services they can use and how to access them. In addition, there are a wide variety of commercial information retrieval services that can provide valuable and timely data to educators. (Half day)

Using Microcomputers in the Classroom. Many faculty members have absolutely no idea of how microcomputers might be used in a classroom setting. This session should be of the "show and tell" variety rather than of the "skill building" variety. Specific applications shown might be transparency preparation (using the LaserWriter), slide show applications (Slide Show Magician), audio applications (SmoothTalker), video applications (ThunderScan, MacPaint™) and music (MusicWorks). (Half day)

Anything that saves faculty time will be most appreciated.

Saving Faculty Time with Microcomputers. Time demands on faculty are great. They include teaching, research, publishing, student advisement, committee work, reviewing manuscripts, keeping up-to-date, and course preparation, just to name a few. There is a reluctance to learn about a new technology unless the time invested will show definite returns. Microcomputers can save a good deal of time! A session that illustrates precisely how this can be accomplished is always well received. Topics could include the ease with which one can learn to effectively use the Macintosh, and the efficiency of word processing. (Half day)

2. FACILITIES. In order to maintain interest in (and facilitate the use of) microcomputers, faculty members must be provided with the

necessary "facilities" for accomplishing their objectives. These can be provided in a variety of ways:

- Some **faculty** members will **purchase** their own systems. At the very least, there must be some means for them to get advice about what hardware and software they should purchase. This will necessitate the "advisor" probably being a faculty member or having some familiarity with their needs.
- **University programs** should be put into place that will provide microcomputers (hardware and software) to faculty for use in support of the instructional and academic activities. Some schools may choose to make this an outright grant, while others may wish to entertain specific proposals from faculty that detail the intended use of such systems.

The university should support use.

- One of the most effective means of encouraging computer use on campus by faculty is to provide a physical facility where faculty members can go to use the latest hardware and software. This facility (often called a **Faculty Microcomputer Resource Center**) should be for the exclusive use of the faculty. Sharing facilities with students does not seem to result in widespread faculty use. Such a center might include half a dozen Macintoshes (preferably 512Ks), a LaserWriter, a daisy wheel printer, ImageWriters™, additional disk drives, hard disks, modems, and a large variety of software. Financing for such a facility might come from within the university or from the local business community. Often software vendors will provide complimentary copies of their software (once they are assured that some level of integrity will be maintained in the facility). Many institutions are used as "beta" test sites for new software products. The Faculty Microcomputer Resource Center can also double as a training facility. Such a center tends to be well-used, and can help make great strides toward the integration of microcomputers into the academic setting.

Create a special facility just for faculty use.

3. MAINTAINING A PROACTIVE POSTURE. Educating faculty members and providing appropriate facilities isn't enough to ensure that microcomputers become an integral part of academic activities. In most cases, it will be necessary to adopt some proactive strategies for stimulating their use. There are several ways to accomplish this. One technique that has been quite successful is to **schedule entire departments for a presentation** at your Faculty Microcomputer Resource Center. During the course of a morning the most typical microcomputer applications could be demonstrated. The focus could then turn toward how that PARTICULAR department could best incorporate computers into its academic or instructional activities. There are two strengths to this approach: the department members themselves are the best judges as to what their needs are, and the resource center personnel are in the best position to suggest the appropriate software and hardware to accomplish those needs. Very often, such departmentwide sessions result in follow-up meetings where more specific training takes place.

Turn on your faculty to microcomputers.

You can sit back and wait for something to happen.

Another possible approach to stimulating faculty involvement is to form **software development teams**. The intent here is to bring together people with various skills in an effort to produce educational software. This does not necessarily mean a commercial product. It simply means developing an application that has some utility in the classroom setting. The software development team might include individuals with the following skills: an instructional- or curriculum-design expert; a technical person with knowledge of how to develop an original Macintosh application, or thorough knowledge of how to apply

an existing one; and some creative people with great ideas but little technical computer expertise. These teams may be composed of faculty, students, and/or staff. (It should be recognized that this approach necessitates the development of policies and procedures by the university about what to do with any resultant product.)

Enlist an advocate to spread enthusiasm.

4. THE ADVOCATE THEORY. Though all of the techniques discussed work, the single factor most likely to ensure successful integration of the microcomputer into the academic environment is an advocate. In order to implement many of the ideas listed above, you need an individual (or individuals) who is committed to the concept—and who has an almost envangelical enthusiasm for the microcomputer. It is the role of this "advocate" to set up and help staff the Faculty Microcomputer Resource Center. Usually, this person prepares a monthly newsletter and disseminates microcomputer information to the faculty at large. Faculty training is also often done by this person.

If possible, your advocate should be a member of the faculty—and a great teacher. Though computer skills are, of course, a necessity, this person need not be a computer scientist. He or she must be someone who can communicate well, has some organizational skills, and is willing to help with the integration of the microcomputer into the university community. All too often, we expect such advocates to perform these Herculean tasks in addition to all of their other responsibilities. If you really want to succeed in your microcomputer endeavors, you should find your advocate, release that person from all other activities for one or two semesters, and support your advocate with equipment, student assistants, and a modest budget. Over the next few years, you might be able to rotate different faculty members into this position.

All About the New MacWrite

Disk-based MacWrite™ has added features not yet described in the manual.

Now you can write longer papers (no excuses).

Larger Documents

The new MacWrite no longer keeps your entire document in memory while you're working on it, but rather keeps it on the disk, bringing into memory only what you're currently working on. This means you can create and edit much larger documents. A document can have as many as 500 Return characters on a 128K system and 2,047 on a 512K system.

In an average prose document, 500 Return characters give you about 60 pages (enough for a hefty chapter of your great American novel). Choose About MacWrite from the Apple menu, to see the size of the document you're working on (it's shown in kilobytes). Don't let a MacWrite document get larger than 250 pages, though. Even if you have a hard disk and there are less than 500 Return characters in the document, MacWrite won't be able to handle it.

If you have only one disk drive, it's a good idea to keep both the application and the document you're working on together on the same disk, because disk-based MacWrite uses the disk frequently while you're working on a document. Otherwise, you'll spend a lot of time swapping disks. Of course, you can copy MacWrite to as many disks as you need.

Using the New MacWrite with Old MacWrite Documents

Old files can be used with the new MacWrite. . .but there's no going back.

You can use the new MacWrite with old MacWrite documents by dragging the new MacWrite icon onto disks that have existing MacWrite documents.

When you open an old MacWrite document using the disk-based MacWrite, the document is automatically converted to work with the new MacWrite. Once converted, it opens as an untitled document. Name it the first time you save it. If you don't plan to use the document with the old MacWrite application again (and there really isn't any reason to), go ahead and rename the converted document using its original name. If you want to keep the original version to use with the old MacWrite, give the converted document a new name. The original will still appear on the desktop the next time you quit MacWrite. You can then drag the document to a different disk to use with the old MacWrite.

Once you convert a MacWrite document, you can open it only with the new MacWrite. You can't change it back to the old format.

Alignment Commands

Aligning the tires of your car should be this easy.

There are four new commands in the Format menu that let you change the alignment of selected text without inserting a new ruler. You can choose Align Left, Right, or Center, or you can justify text so it's spaced out across the full width of the margin by choosing Justify. The new alignment affects the entire paragraph that contains your selection.

When you select text and then choose one of these commands, the alignment you choose overrides the alignment setting in the current ruler. Choosing Use Ruler causes the alignment setting of the current ruler to take effect again.

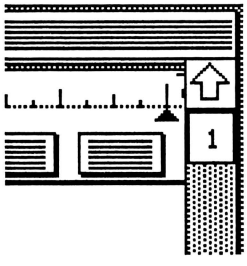
Find Next makes searching easier.

Find Next Command

Once you've searched for text using the Find command and activated the document window, you can now continue searching through a document for more occurrences of that text without having to reopen the Find window.

Choosing Find Next from the Search menu or using its Command-key equivalent (Command-F) finds the next occurrence of the text you've previously specified. If you haven't yet specified any text, choosing Find Next presents a dialog box that asks you to type the text you want to find. To change what you want MacWrite to find, choose Find.

Go instantly to any page in your masterpiece.



Current Page Number and Go to Page # Command

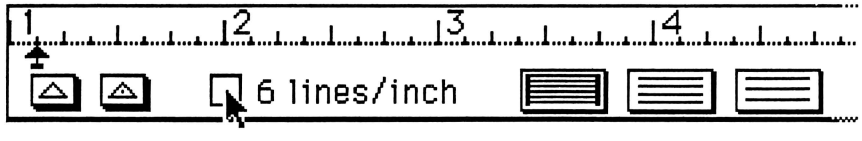
The scroll box now shows the number of the page you're currently viewing. The number changes as you drag it, so you can find the exact page you want to view by dragging the scroll box until the page number appears.

Standard typewriter spacing is now available.

Another way to find an exact page in the document is to use the Go to Page # command in the Search menu. You can do this without taking your hands off the keyboard by using the Command-key equivalent for this command (Command-G), typing the page number, and pressing the Return key.

6-Lines-per-Inch Line Spacing

There's a new option on the ruler to set spacing to 6 lines per inch (standard typewriter single spacing). This is useful for printing on standard printed forms, for example, or designing forms that are consistent with those proportions. You can use the 6-lines-per-inch option with single, space-and-a-half, or double spacing.



Some fonts may appear slightly chopped off when you specify this setting, especially if you use large font sizes, or superscripts, or subscripts single spaced. However, the problem often disappears when you print your document. Experiment with different fonts and font sizes to get the effect you want.

Text-Only Documents

Save as text-only and use your document with other applications.

You can save a document as text only—without most format information. You do this when you want to use MacTerminal™ to send documents to another computer, or whenever you want to move an entire MacWrite document to another application that doesn't use the MacWrite format—a programming language, for example:

A MacWrite Document

A Text-only Document

You can open a text-only document you created with MacWrite in the usual way. If the document wasn't created with MacWrite, select the MacWrite application icon along with the document before you open it. (You do this by selecting the first icon, and then pressing and holding the Shift key while you select the second.) Similarly, if you want to use another application to work on a text-only document you created with MacWrite, select that application's icon along with the document.

When you open the document, you'll be asked whether you want Return characters retained between paragraphs only (the normal way for MacWrite) or after each line (you'd do this for tables, for example). Text-only documents open as Untitled in the preset font—12-point Geneva—with preset tab markers, line spacing, and justification.

Switcher: A Great Application for Integration

WANTED: Macintosh 512K's.

Switcher is a software product that will allow you to switch between and transfer data between applications almost instantly. See theTechnical Development section for more details.

Hardware Requirements

Switcher requires a Macintosh 512K or Macintosh XL. Its usefulness increases with an external disk drive. Switcher may also be used in conjunction with third-party hard disks.

About This Document

This is a preliminary draft. It will undergo extensive reorganization. Please send me your comments on content. What's not here? What do you need to know? What don't you understand? What have you discovered about Switcher and want to pass on? What are some neat things to do with Switcher? Please send your comments to:

Support your local Switcher.

Macintosh User Education
Apple Computer Inc., M/S 3-U
20525 Mariani Avenue
Cupertino, CA 95014

You may also mail bug reports to:

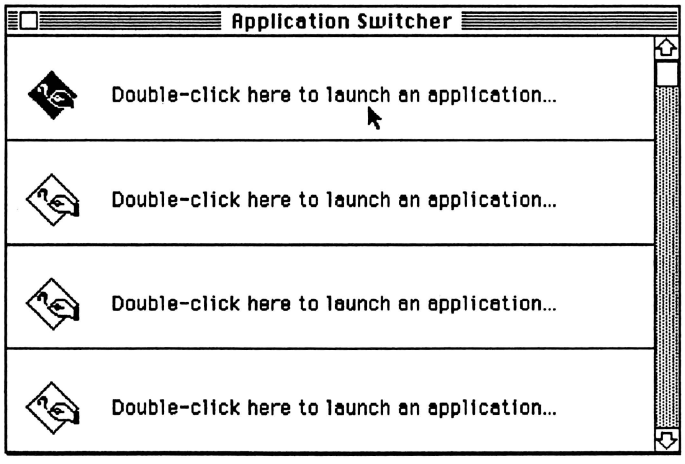
Ron Brannan
Apple Computer Inc., M/S 22-G
20525 Mariani Avenue
Cupertino, cA 95014

How to Use Switcher

Before you start, you may wish to copy applications you'll be using to the Switcher disk or to a nonstartup disk you'll put in the external disk drive. Depending on the application, you may also want your documents available on one of the two disks.

Starting Switcher

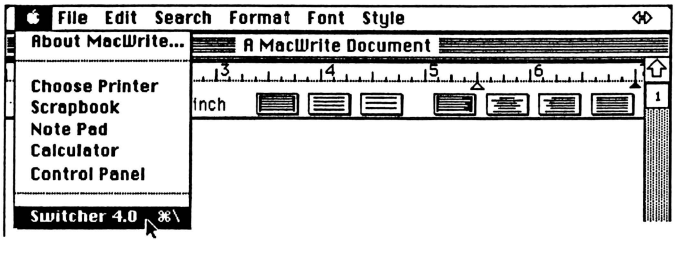
Start Switcher like any other application: Double-click the Switcher icon, or choose Open from the File menu. You'll see the Switcher window:



Up to four applications are available to you in an instant.

Installing Applications

The first thing to do after you start Switcher is to designate which applications you want to use. You can load all the applications at once, or load one, start working, and load others later. To start an application, double-click one of the Switcher slots. All applications on the disk with which you started Switcher will appear. You can click the Drive or Eject buttons to get applications on another disk. Select the application you wish to install and click Open. Switcher will start the specified application, then return you to the Switcher. You can now install another application or use the Switching arrow to move to the application you've started.



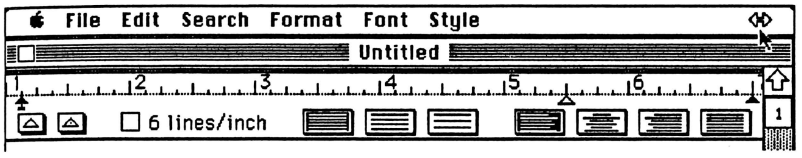
If you want to install additional applications while you're using Switcher, you must first return to the Switcher window. From within an application, look at the Apple menu; you'll notice a new command at the bottom, Switcher. Choose it, and you'll return to the Switcher window.

Switching back and forth is a lot like changing channels.

Depending on how much memory is available, you can now select another application to install. Up to three applications may be installed using Switcher's preset options. You can install as many as four applications using 128K of memory each, and a maximum of eight applications using less than 128K of memory. To install more than three requires some memory-conservation tricks (and probably a hard disk to hold all the applications you'll want to use).

Moving Between Applications

Once you have installed and started the applications you want to use, you're ready to take full advantage of Switcher. With Switcher, you can work within any one of your applications as you normally would, then move to the next application just by clicking the Switching arrow.



Set it up and forget about it.

Switcher moves you to the next or previous application, depending upon whether you click the right or left arrow. Clicking in the middle of the arrow returns you to the Switcher. You can begin working with the application immediately.

Saving Your Configuration

Switcher provides a fast way to get started with your favorite combinations of applications and settings. You can save the current state of the Switcher and all the applications (the set) in a Switcher document. A Switcher document contains information to start Switcher and load all the applications and options that make up the set. To start Switcher with a designated set, just open a Switcher set document from the Finder or from within Switcher, and choose Load Set from the Switcher's File menu.

To create a Switcher document, start Switcher, then install and start all the applications you want to use. If you want the set to open a particular document, use the Attach Document command (see below). Select any Switcher option changes you want (Switcher menu). When you're satisfied with the configuration, choose Save Set from the File menu. You'll be asked to name the set. After you've saved a set or loaded a new set, you can continue working, adding, or removing applications or documents without affecting the contents of the saved set document.

It's okay to change your mind.

Removing Applications

You can easily remove an application from the Switcher by quitting it. Choose Quit from the File menu within the application. You return to the Switcher window or to a neighboring application in the set. To remove a non-active application (designated by the word "Configure"), return to the Switcher window and select the application you wish to remove. Choose Remove Application from the File menu. Please note that you cannot remove an active application. You must quit the application before you can remove it. After you remove an application, the slot becomes free.

Quitting Switcher

Before you can quit Switcher, you must first quit all active applications. Then choose Quit from the Switcher's File menu. The procedure is slightly different if the Finder is one of the active applications. First, quit all other applications, then move to the Finder and start an application. That application will begin.

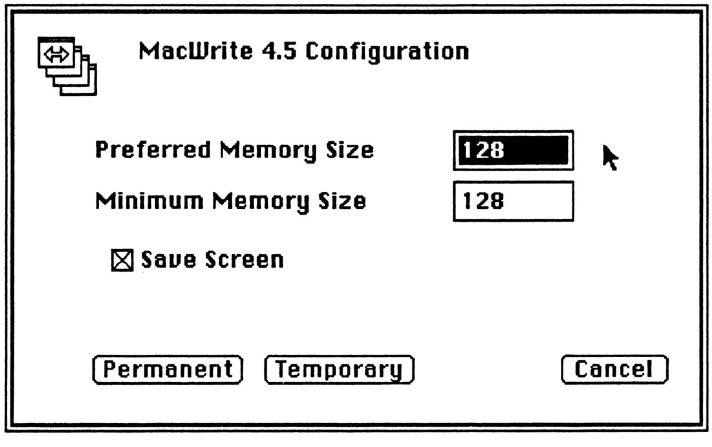
Fine-Tuning

Switcher automatically allocates 128K of memory for most applications, 144K if the Room for LaserWriter option is in effect, or more if the application knows about Switcher and requests a specific amount. However, different applications have different memory requirements. If you are working with a large MacWrite document, you may want to allocate more memory to MacWrite and less memory to another application. Switcher not only allows you to specify the memory configuration of each application, but also provides you with graphic information to help you decide on the optimal memory configuration for your selected applications.

You can decide how much memory is allocated to each application.

Configuring Applications

The Configure then Install command (Switcher menu) allows you to specify a preferred memory size for the application you're installing. You have several other options as well:



• **Save Screen.** This option stores the screen contents when you switch from one application to another. Unchecking Save Screen turns this option off. When Switcher saves the contents of the screen, switching between applications is faster. However, saving screen contents consumes 22K of memory per application. If you choose not to save screens, you'll free up additional memory, but your switching time will increase.

• **Suspend/Resume.** This feature shouldn't be used now. It's for future applications optimized to use Switcher. More information in future drafts.

• **Permanent.** Clicking the permanent button installs the application and makes this configuration permanent: All future Switcher sessions will use the preferred memory size for that application.

• **Temporary.** Clicking the Temporary button installs the application and makes the changes for the current session only.

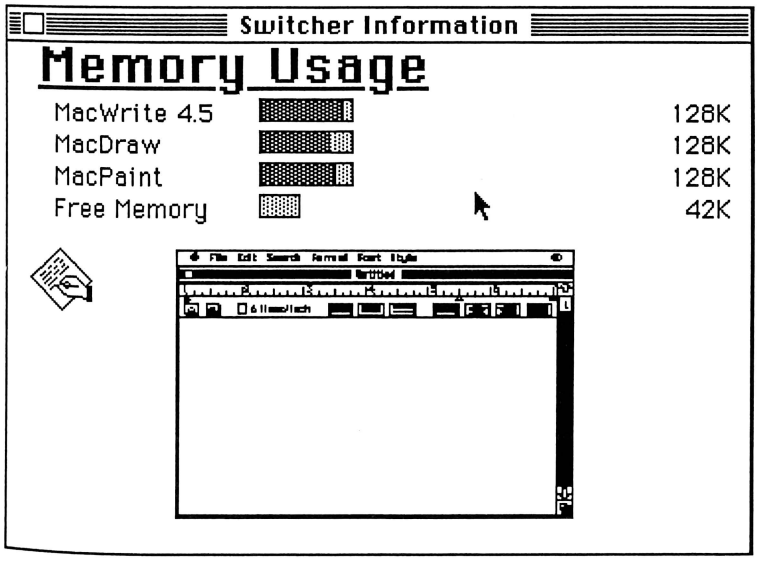
• **Cancel.** Returns you to the Switcher window without installing the application.

After you've configured an application, you return to the Switcher window. The application appears in a slot with the word "Configure" to show that the application has not yet been started. To start the application, double-click its slot or click the Switching arrow.

Once you've started an application, you cannot change its memory allocation. You must quit the application and reconfigure it.

The Info Window

The Info Window provides you with a graphic snapshot of the memory allocation and requirements of the current set of applications. You can use this information to help you configure your Switcher environment. To see the Info window, choose Show Info Window from the File menu.



Check on how much memory you have left.

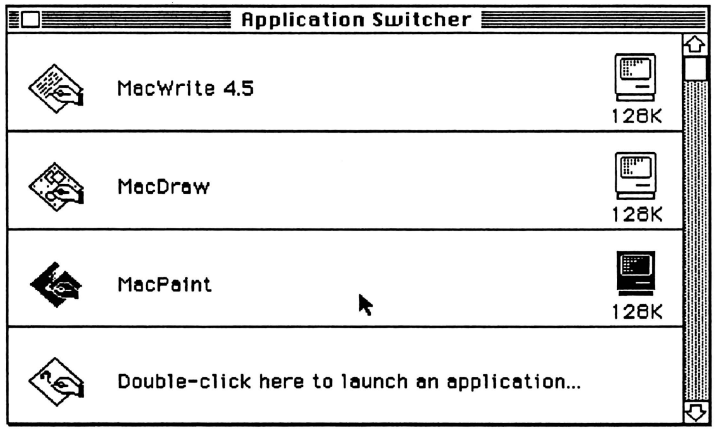
The Info window shows how much memory has been allocated to each application; the dark gray area in each box shows how much memory is actually being used; the light gray shows how much additional memory is available to the application. The application that is currently selected in the Switcher window is checked and visually represented. If the Info window shows that a particular application has been allocated much more memory than is actually being used, you may wish to quit the application, return to the Switcher, and reconfigure the preferred memory size for the application.

Your choice: save the screens or save some memory.

Saving Screens

If you need more memory, you can opt to have Switcher not save the screen contents of an application between switches. This saves 22K per application. One way to do this is with the Configure then Install command (see "Configuring Applications" on previous page). Another way is by using the Switcher window itself:

By clicking the screen of the Macintosh icon in an application's slot, you can turn Save Screen on or off. In the above example, the MacWrite screen will not be saved, but the MacDraw™ and MacPaint screens will.

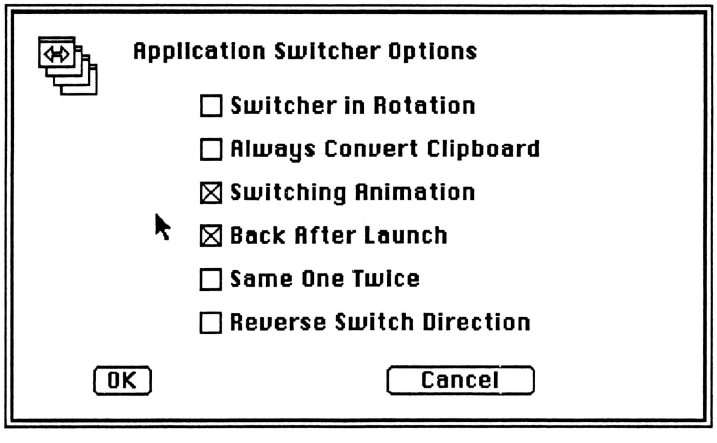


Customize Switcher to work the way you like.

Switcher Options

You can tailor Switcher to suit your particula needs and preferences. From the Switcher window, choose Options from the Switcher menu.

You can check or uncheck various options to suit your needs.



Switcher in Rotation. The Switcher window itself is included in your set of applications.

Always Convert Clipboard. When you are using Switcher, each application maintains its own private Clipboard. If you copy a piece of text in MacWrite and then switch t o MacDraw, the copied text won't appear in MacDraw's Clipboard. However, if you always want the Clipboard from the current application to be carried over to the next application you select, you should check this box. When you check this option, you'll notice it takes longer to move between applications.

Switching Animation. When this box is checked, animation is in effect and applications will "roll by" on the screen. When this box is unchecked, animation is not in effect; the next application "springs to life." This is strictly a matter a personal preference, although using animation does take a little more time.

Back After Launch. When this is checked, you return to the Switcher window after you start a new application. When it's not checked, you remain in the application you start.

Same One Twice. Would you like to have two copies of MacWrite running simultaneously or four copies of MusicWorks? If this box is checked, you'll be able to run multiple copies of the same application. If it is unchecked, Switcher will not allow you to start multiple copies. Please note that some applications create special temporary files or may not be designed to handle things "happening behind their back." Therefore, it may not be safe to run multiple copies of some applications. Use this option at your own risk.

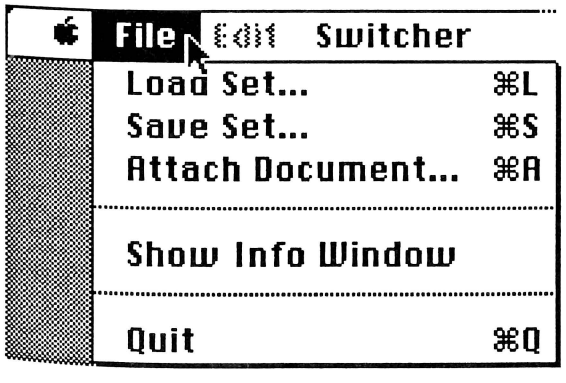
Ever wish you had two MacWrites at once?

Reverse Switch Direction. This is fairly existential—but a feature, nonetheless. When you click the right arrow, which application do you want to switch to—next or previous? You choose which direction is associated with which concept.

Lefties take notice.

Room for LaserWriter. An application can't print on the LaserWriter unless it has at least 144K of memory. This option changes the minimum memory allocation to 144K.

Menus. You'll see four menus in the Switcher window: the Apple menu, the Edit menu, the File menu, and the Switcher menu. The Apple and Edit menus are standard.



You can save your Switcher settings for future use.

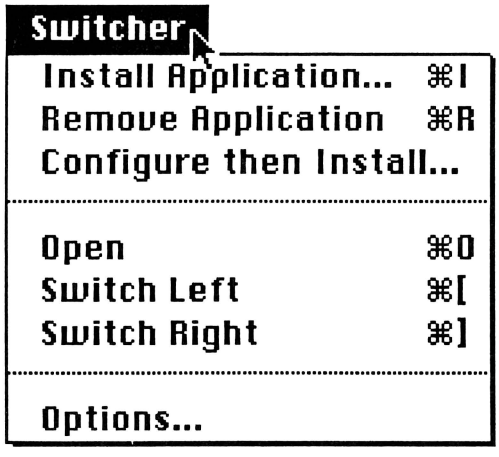
Load Set. This command lets you choose any Switcher document to load. You should first quit any active applications to leave room for the applications in the set.

Save Set. This command saves the current set of applications as a Switcher document that can later be retrieved with the Load Set command.

Attach Document. When you load a Switcher set, this command causes an application to open a specific document. To attach a document, select an application slot from the Switcher and choose Attach Document from the File menu. If MacWrite is the selected application, a box appears with a list of all MacWrite documents. You may then select the specific MacWrite document that you wish to work with when the application is started. The attached document must be on the same disk as the application.

Show Info Window. This presents the Info window.

Quit. Exits Switcher. You won't be able to quit Switcher until you've quit all active applications.



Getting started with Switcher.

Install Application. Allows you to select an application for installation. It's the same as double-clicking one of the slots in the Switcher window.

Remove Application. Lets you remove a nonactive application from the current set. A nonactive application has the word "Configure" in its Switcher slot.

Configure then Install. Allows you to select an application to install and opens the Configure window.

Open. Starts a nonactive application.

Switch Left. Moves to the application to the "left."

Switch Right. Moves to the application to the "right."

Options. Presents the Options window (see Page 14).

Keyboard Commands and Shortcuts

You can take shortcuts with the keyboard.

Many Switcher commands have Command-key equivalent shortcuts.

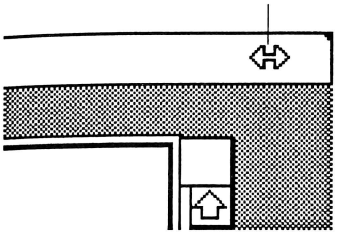
Moving between applications and the Switcher. There are several ways to move between the Switcher window and an application started with Switcher. Use the technique you like best.

- **Choose Switcher from the Apple menu.** Whenever you're in an application, the command Switcher is added to the bottom of the Apple menu.

- **Type Command-\.** Hold down the Command key and the Backslash key (located directly below the Backspace key).

- **Click the center of the Switching arrow.** You return immediately to the Switcher.

The Finder can even be one of the applications.



- **Quit the application you're in.** If you've designated Switcher in Rotation, you'll go back to the Switcher.

You can share a common clipboard or have separate ones.

- **Click the Switching arrow until you arrive at the Switcher window.** This only works if you've chosen the Switcher in Rotation as an option.

Emergency Exit

Bailing out.

If one of your applications hangs up (or you receive a "bomb box"), don't panic—you may be able to recover and return to the Switcher window. Try holding down the Option, Command, Shift, and Period keys. This should gracefully return you to the Switcher window—without clobbering the other applications.

Using Four 128K Applications at Once

You can have four 128K applications running at a time with Switcher. To do so, you'll need to turn off all Switcher options that use memory. In the Options window, turn off Switcher in Rotation, Always Convert Clipboard, and Room for LaserWriter. Then turn off Save Screen for all applications.

Using Less than 128K of Memory

Some applications (including MacPaint and MacWrite) can run with less than 128K of memory. Try different memory applications with the Configure then Install command. Most applications will tell you immediately if they won't work.

Using 512K Applications

Applications designed to work on a Macintosh 512K may be able to work in Switcher with less than 512K of memory allocated. Install the application with Configure then Install using different amounts of memory. The application will tell you whether it will run.

The text above was created using the Special Effects disk made by T/Maker. This package allows you to add four special effects to your MacPaint disks: Perspective (shown above), 360-degree text rotation, a distortion effect, and a slanting effect. For more information, see Page 113

Macintosh Update: New Versions From Apple

SEE YOUR DEALER OR UNIVERSITY OPERATIONAL CONTACT

New MacWrite and MacPaint versions are available.

The Write/Paint and System Update disks include new versions of MacPaint, MacWrite, and the Finder and other system files. There's also a new Font/Desk Accessory Mover to let you move both fonts and desk accessories among disks. This document and the document named "About MacWrite" describe these changes (there's no document for MacPaint because the way you use the application hasn't changed).

Updating Your Existing Disks

Copy the new MacPaint to all disks that have an old version of MacPaint on them.

See "Copying a Document, Folder, or Application to a Different Disk" in *Macintosh*, your owner's guide.

Copy disk-based MacWrite to all disks with MacWrite.

Use the System Update application to update all startup disks (disks with system files).

The System Update application installs the new Finder (version 4.1), adds the Choose Printer desk accessory to the Apple menu, updates the System file, and replaces any existing ImageWriter file. It's a good idea to update all your Startup disks. That way you'll always have the latest Finder and other system software.

If you're using a hard disk with your Macintosh, be sure to update both the hard disk and any other disk you use with it to start up your Macintosh.

About the New Finder

The new Finder is faster, better, and features a MiniFinder.

The Finder is the application you use to manage your Macintosh desktop. The new Finder (version 4.1) is faster than the old version, and it works better with hard disks. It also has some added features, such as the MiniFinder, which lets you move quickly between the applications and documents you use most often. The new Finder works with any existing applications and documents—no changes are necessary.

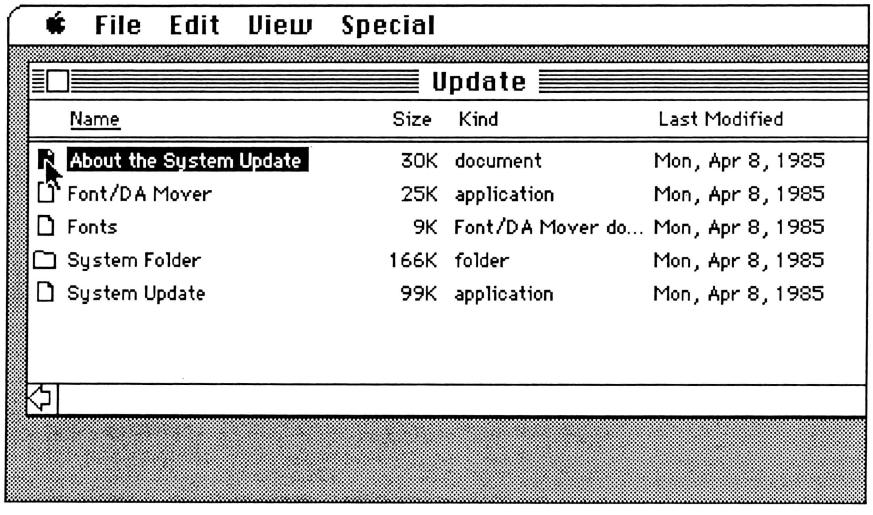
Full Capabilities in Any View

With the old Finder, you could duplicate, move, rename, or discard documents, folders, and applications only when directory windows were arranged by icon. With the new Finder, you can do any of your desktop work with your directories in any arrangement—by icon, name, date, size, or kind. In any of the text view (any view other than by icon), a small icon appears to the left of the document name. Click, double-click, drag, or Shift-click this icon just as you would its counterpart in an icon view of the directory.

To rename a document when a directory isn't arranged by icon, select the name and edit just as you edit icon names in an icon view or on the desktop.

The padlock symbol indicates a locked file.

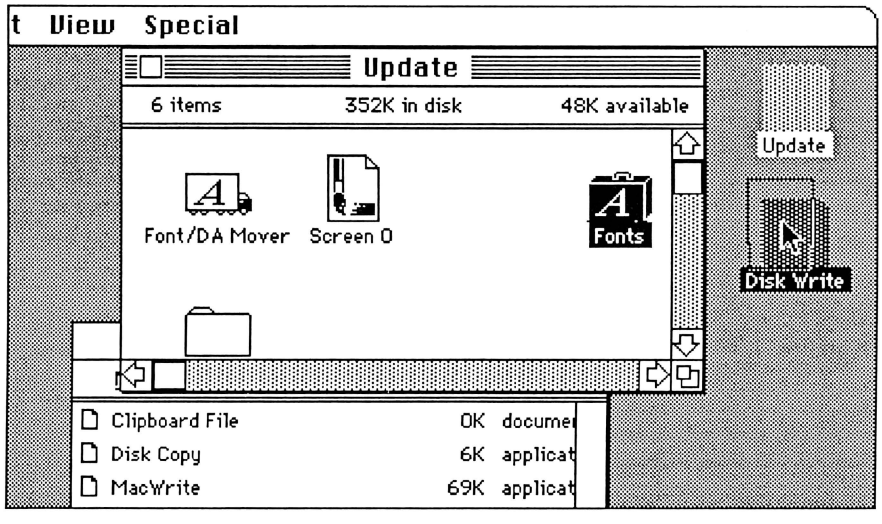
Directories in text view also indicate (with a small padlock on the right) which of your documents are locked. If you lock a folder or if you physically lock the disk, the padlock appears in the top left corner just below the title bar.



Dragging to a hollow icon is now allowed.

Dragging Icons

In the past, you couldn't drag an icon to a "hollow" icon; you had to drag it to the icon's directory window. Now you can drag an icon either to a directory window or to the hollow icon that remains behind when you open an icon. If you drag to a directory window, you can place the icon wherever you want it; if you drag to a hollow icon, the Finder will place it in the next available spot.



Naming Icons

Fewer accidents with renaming icons.

In the past, typing renamed any selected icon, whether you had clicked it or not. Now you click explicitly on an icon (or icon name) to edit its name, even if the icon is already selected. This means you're less likely to rename disks accidentally. There are a couple of exceptions: When you create a new folder by choosing New Folder, or when you duplicate or move a document, folder, or application, typing renames what's selected, without you clicking it first. (This is true in text views as well.)

If you name an icon the same thing as an icon you just dragged to the Trash, the Trash is automatically emptied so you can use the name again.

Ejecting Disks

Now, choosing Eject always ejects a disk (if one's inserted and it isn't a hard disk), even if none is selected. The Finder looks for any inserted disk to eject. Choosing Eject again ejects any other inserted disk.

If you want your Macintosh to forget about a disk (and not ask for it again), drag the disk to the Trash. This doesn't erase the disk; it just ejects it and removes the icon from the desktop. You can't drag the current startup disk to the Trash.

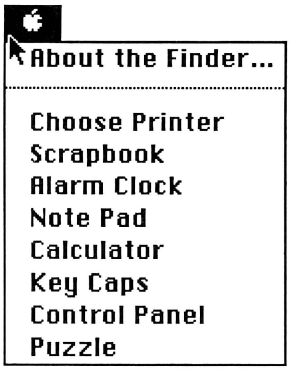
You can't edit an ejected disk's comment box (in the Get Info window) or that of any of the documents on that disk.

The Apple Menu

About the Finder now tells memory size.

The About the Finder Command

The About the Finder command in the Apple menu now tells you the memory size of the Macintosh you're using. (Memory used for MacWorks™ is subtracted on a Macintosh XL.)



The Choose Printer Desk Accessory

You can now choose between printers.

The Choose Printer Desk Accessory is available in the Apple menu both in the Finder and in any application you start using on an updated startup disk. (More about this later.)

The File Menu

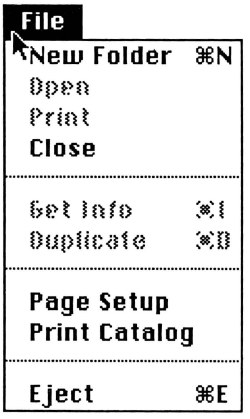
The New Folder Command

New Folder gives you a new folder.

There's a new command—New Folder—in the File menu. Choosing this command creates a new folder (so you no longer have to duplicate an existing one). You can rename the folder immediately after you create it, by typing the name you want. Rename it any other time by selecting the name or icon and editing it in the usual way.

New folders appear in the frontmost window on the desktop. The command is dimmed if no windows are open.

Page Setup works with Print Catalog.



The Page Setup Command

The Page Setup command lets you set up the orientation and size of directories you print using the Print Catalog command. In the Finder, this command works only with the Print Catalog command; a document's page setup is controlled by the Page Setup command in the application.

Note that Close All and Put Back have been removed from the File menu.

The Print Catalog Command

There's a new Print Catalog command in the File menu that prints the contents of the active directory window—in whatever view you have the directory arranged.

The Special Menu

The Use MiniFinder Command

To move quickly between applications, you can now place the applications and documents you use most often in the MiniFinder. Here's how to use it:

Use the MiniFinder for applications you use a lot.

In the Finder, select what you want to place in the MiniFinder.

You can select up to a total of 12 mixed or matched documents and applications. You might, for example, select the applications you use most often, the documents you're currently working on, or both. (You can easily change what's in the MiniFinder whenever you want.)

The documents and/or applications you select must all be in the same directory window. If necessary, drag them there before you select them. Any application you need to work on your MiniFinder documents must be on the same disk as the documents. You can move between disks in the MiniFinder.

Choose Use MiniFinder from the Special menu.

Click Install.

The next time you start your Macintosh using this disk or quit an application on this disk, the MiniFinder will appear instead of the usual desktop. (The spatial order of the applications and documents in the MiniFinder corresponds to their order in the Finder.)

Open an application or document that's installed in the MiniFinder by selecting it and clicking the Open button, or double-clicking the icon.

You can also click any of the other buttons on the right. Clicking Finder (or pressing the Enter key) takes you back to the Finder. Clicking Open Other opens applications that aren't installed in the MiniFinder (as well as those that are installed), whether they're on the same or other disks. Clicking Shut Down ejects any inserted disks and restarts the Macintosh.

You can always return to the real Finder.

To change what's in the MiniFinder, click the Finder button to return to the Finder, select the applications and documents you want in the MiniFinder, choose Use MiniFinder, and click Install.

To stop using the MiniFinder, return to the Finder, choose Use MiniFinder, and click Remove.

Dragging the MiniFinder icon to the Trash also removes the MiniFinder.

You can install the MiniFinder on any of your disks that contain applications, even if they're not startup disks. When you start up your Macintosh, it uses any MiniFinder it can find, even if it's not on the startup disk.

The Shut Down Command

A quicker shutdown speeds things up.

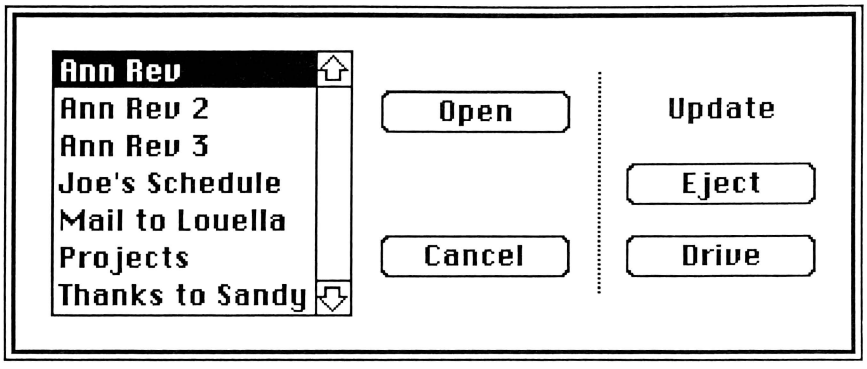
There's also a new command in the Special menu. Choosing Shut Down ejects any inserted disks (first saving any necessary information) and then restarts the Macintosh. This is a shortcut for when you want to restart the Macintosh using a different startup disk. On a Macintosh XL, choosing Shut Down turns the power off, but not on again.

Lost Folders

If the Finder has an error and can't reconstruct your folders exactly as they were, the top level of the folder hierarchy will be remembered (although the names will be lost and the folders will be renamed Unnamed #1, #2, and so forth).

The Open... Dialog Box

When you choose Open within an application, a list of files appears for you to select from. In the past, you could type a character to select the first document starting with that character (or the first document to follow in alphabetical order). Now as you continue to type additional characters, any file that matches the characters you type is found and selected. If you pause while typing, the Finder considers the next character to be a new request, rather than a continuation of your first request. The keyboard touch (which you set in the Control Panel) determines how long the Finder waits for additional characters in a single request.

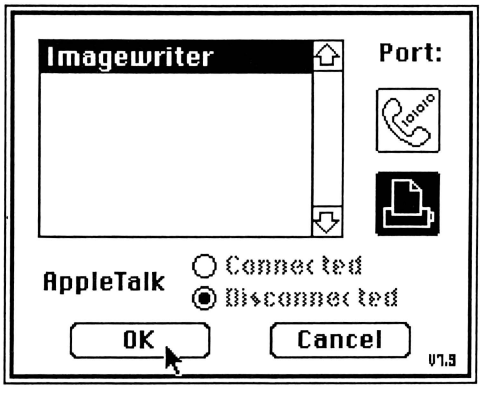


About the Choose Printer Desk Accessory

The Choose Printer desk accessory lets you print from any attached printer for which there is a printing resource file on the current startup disk. (A printing resource file is a system file that usually has the same name as the printer itself.)

If you're using an ImageWriter, you probably won't use the Choose Printer desk accessory. The Macintosh is preset to print documents on an ImageWriter connected to the Printer port (Serial port B on a Macintosh XL). You'll use Choose Printer only if you connect AppleTalk™ or another piece of hardware to the Printer port and want to designate the Modem port for the ImageWriter.

Choosing printers can only be done if a printing resource file is on the startup disk.



Printers other than the ImageWriter, such as the LaserWriter, include disks containing a Printer Install application that installs the printing resource file (sometimes called a "driver") for that printer. Once you install the printer on a disk, it appears as a printer option when you select Choose Printer.

About the Font and Desk Accessory Mover

As new fonts and desk accessories become available, you may want to add some of them to your startup disks. But fonts and desk accessories can take up a fair amount of space on a disk, so you probably won't want your complete set on every startup disk. The Font and Desk Accessory Mover (Font/DA Mover) is an application for copying fonts and desk accessories among disks or removing them from disks.

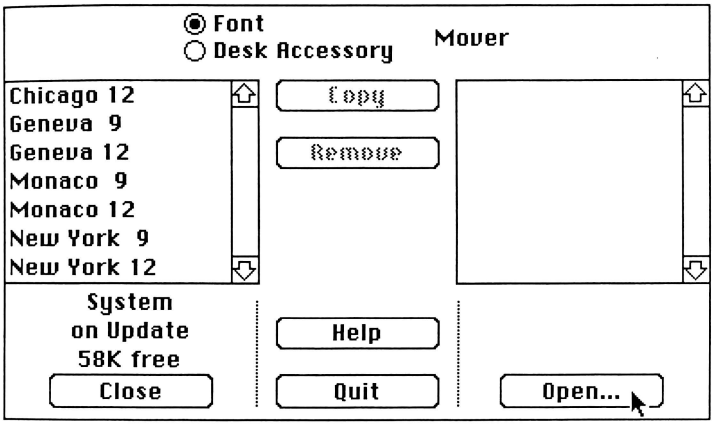
The Apple and Font menus in any application always contain the desk accessories and fonts in the current startup disk's System file (a file in the System Folder). You can also store collections of fonts and accessories in special font and desk accessory files the Macintosh uses just for that purpose. Whan you want to use the fonts or accessories in those files with an application, you use the Font/DA Mover to add them to the System file of the startup disk you'll be using with that application.

A new Font and Desk Accessory Mover is easy to use.

Using the Font/DA Mover to Add or Remove Fonts or Desk Accessories

Open the Font/DA Mover.
Select the icon and choose Open from the File menu, or just double-click the icon. Opening any font or desk accessory file also opens the Font/DA Mover automatically.

The Font/DA Mover is included on the Update disk; you can open it there or copy it to any other disk. See "Copying a Document, Folder, or Application to a Different Disk" in *Macintosh*, the owner's guide.



Two applications have been combined into one.

Click either the Font or the Desk Accessory button, depending on which you want to add or remove.

The list on the left includes all fonts or desk accessories in the System file on the current startup disk (whether it's in the internal or the external disk drive). The list on the right includes fonts and desk accessories in the System file on any other inserted startup disk.

Use the Open buttons to present lists of any other font and desk accessory files on any inserted disk.

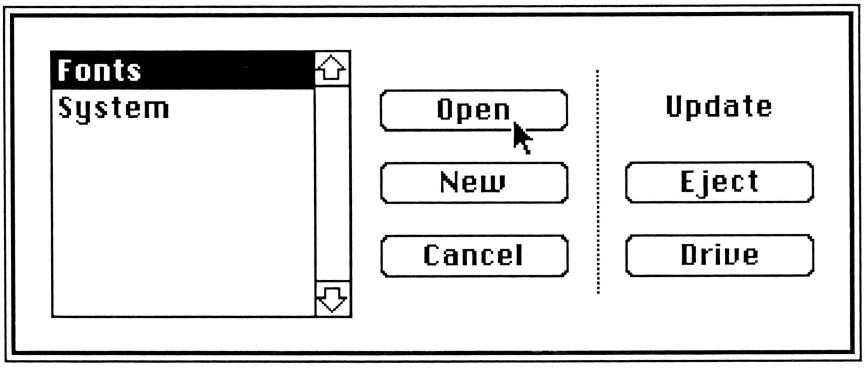
If necessary, first click Close to close the file currently displayed. Each Open button lets you control what's displayed in its list. Both the file you're looking at and the disk it's on are shown below each list.

Whenever you click an Open button, a dialog box with a list of files appears.

Use the Eject or Drive buttons to look at font and accessory files on other disks or other files on the same disk. The name of the disk you're looking at is always shown in the top right.

If you have a one-drive system, clicking the Open button on the right side automatically presents a list of font and accessory files on the same disk. If you want to look at another disk, click Eject and insert the disk you want to work with.

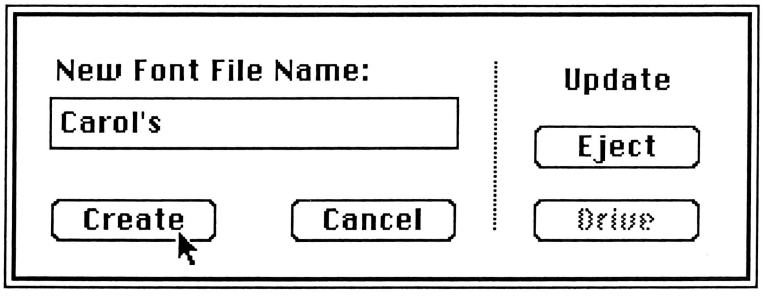
Open the file you want to look at by selecting its name and then clicking Open.

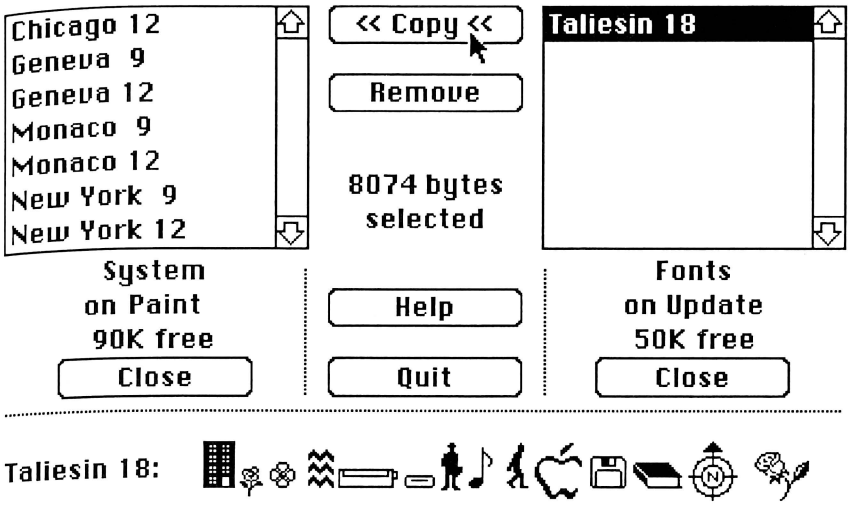


You can look at and work with any existing system, font, or desk accessory files. The Taliesin Font file on the Update disk contains a pictorial font you may want to add to some of your disks.

Create your own font file.

Or create a new file for your own collection of fonts or accessories by clicking New, naming the file, and clicking Create.





You can select from either list.

Select the fonts or desk accessories you want to copy or remove.

You can select from either list. Click to select a single font or accessory, hold down the Shift key while you click additional single fonts or accessories, or drag to select a group. Shift-click to deselect a file. The number of bytes selected is displayed, as well as the amount of space available on the disk. Both the name of the current file and the name of the disk it's on are displayed below each list.

When a single font is selected, the name, size, and a sample of the font are shown at the bottom of the window; when more than one font is selected, or when an accessory is selected, nothing is displayed there.

Click Copy to copy the selected fonts or accessories in the direction the arrows point, or click Remove to remove the selected fonts or accessories.

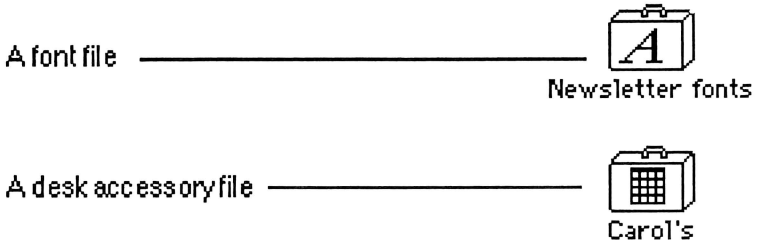
This copies the fonts or desk accessories to the opposite file, or removes the fonts or accessories from the file you opened. If you remove all fonts or accessories from a file, the file itself will be gone the next time you click Open.

Only fonts and desk accessories in the current startup disk's System file are available to applications you use with that disk.

Click Quit.

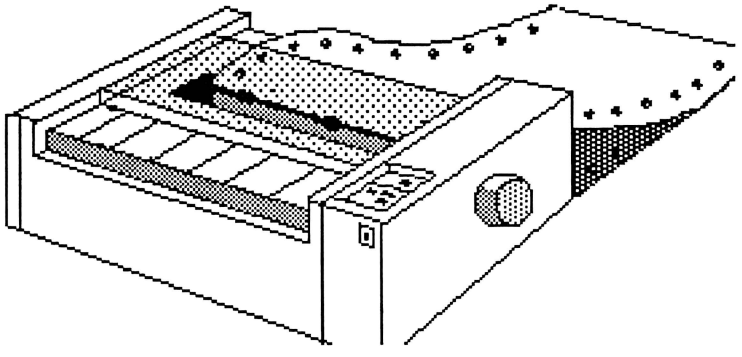
In the Finder, you can drag any font or accessory files you no longer need to the Trash, or copy or move these files between disks. See "Copying a Document, Folder, or Application to a Different Disk" or "Moving a Document, Folder, or Application to a Different Disk" in *Macintosh*, the owner's guide. Opening any font or accessory file automatically opens the Font/DA Mover.

Only 15 desk accessories are allowed.



You can have only as many fonts available at one time in an application as will fit in the application's Font menu. (This number varies, depending on the application.) You're limited to 15 desk accessories in a disk's System file.

You can use the Font/DA Mover to create an auxiliary set of fonts or accessories. Later, you can move the current System file fonts or accessories to another font or accessory file you create, and then copy your auxiliary file to your System file. You can alternate between the two fonts files (or any others you create) whenever you want.



News from Networks and Elsewhere

Compiled by: Jerry Keough
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In this new Wheels column, I'll try to collect notes I think are interesting and pass them along. I'll look for information primarily in "network clippings" and user group newsletters. For the most part, I'll look for items that are not too time dependent (because of the lag between the time I put them together and the time they finally get printed and distributed) and not too "controversial" (for example product reviews and personal/unofficial opinions). I'll try to pass along enough of a variety of notes to give those of us who are not "on a net" or in a user group the flavor of the traffic that appears outside the major and/or official publications.

I confess I have not been an active network user.

I'll confess as I begin this series that I have not been an active network user, and that much of what appears below has simply been passed along by friends and other accomplices. Even though my BITNET address appears in the byline, I haven't yet used it because BITNET is not "on-line" at Boston College; but it will be by the time you read this.

Most of the items below were found in the Info-Mac Digests, and there's some information on getting to it in one of the notes. Some items were passed along from the CompuServe MAUG (Micro-networked Apple User Group), and the first general article came from The Boston Computer Society's Macintosh user group publication, *The Active Window.*

If you come across items you think are interesting and would be good comments for this publication, send them along and we'll look at them for the next issue. Send along your critical comments, too: What do you think I should have here? What should I avoid? What mistakes did I make this time? What can I do better next time? Thanks.

Dennis Brothers: Guided Tour of CompuServe

Subject: Dennis Brothers: Guided Tour of CompuServe
Source: Excerpted from The Boston Computer Society's Macintosh user group newsletter: *The Active Window.*
Note: The following article is copyright 1985 by The Boston Computer Society. It may be reproduced by other nonprofit organizations as long as this copyright notice is included.

Dennis, who is one of the alternate SYSOPs (system operators) on CompuServe, and a nationally known Macintosh authority, gave us an on-line demonstration of the network's MAUG section. The MAUG section is one of the "forums" on CompuServe Information Service (CIS). Forums are electronic gathering places for people with particular interests. MAUG is for Apple® Computer enthusiasts.

A forum consists of three main areas.

A forum consists of three main areas: the message area, the data libraries, and the conference area.

In **the message area** you can read and send public and private mail among MAUG users. The area is fascinating because it allows you to follow the "thread" of previous network conversations. Messages are labeled according to their subject, when they are posted, who sends

them, and to whom they are addressed. (Most messages addressed to individuals can be read by anyone and many are addressed to "All.") There are Forum commands that allow you to read all messages, those to or from a particular member, and those about a particular topic, as well as commands based on other search factors.

The message area is for relatively short messages and items. **The data libraries** are for longer articles, commentaries, and so forth, and for storing software that can be downloaded and run on your Macintosh. Each data library is divided into 11 sections, each with its own theme (Apple II, Macintosh/Lisa®, "Community Square," new products, and more), and its own data library. You can scan the contents of a data library (just like messages) and bring copies of the material into your own computer to be used after you've logged off. For example, the highlight of the data libraries one recent evening was a new program from Apple called Switcher. It had just been put in the library for Macintosh users to download and try out. Switcher allows you to run a number of applications on your Macintosh at the same time and quickly switch between them whenever you want.

The third part of a forum is **the conference area**. Here, you can participate in "live" conversations with others. The others can see what you type on your keyboard, and you can see what they type. This is a really powerful and entertaining feature. MAUG sponsors regularly scheduled public conferences in which Macintosh celebrities or experts (or both) are interviewed by any and all comers.

Forums such as MAUG are a great way to get involved in an area that interests you. There are forums on CIS and other information services that cover just about any subject you're likely to be interested in. By the time you read this, Dennis reported, MAUG should have opened up a similar section on the Delphi network.

Subject: Finder info (FCMTs)
Source: Jim Perry, Dartmouth College jimp@dartvax

Finder information strings (FCMTs)

The Finder's information strings that contain the text entered in the Get Info window are stored as FCMT (=STR) resources in the volume's desktop file. The resource ID is computed from the file name as a 15-bit hash code (always negative), with no provision for handling collisions.

The following is the specific hashing algorithm:
result <- 0
for each byte in the name (L->R),
    result <- ror.w(result xor byte, 1)
    if no carry (result positive), negate result

In Lisa Pascal (post-3.0; if using toolbox bit ops, watch for integer->longint sign extension):

```
var result,i: integer; b: boolean; name: str255;
...
result :=0;
for i := 1 to length(name) do begin
   result := bxor(result, ord(name[i]));
   b := odd (result);                (* would rotate produce carry? *)
   result := bsr(result,1);          (* long rotate doesn't help *)
   if b then result := bor (result,$8000) (* simulate carry *)
   else result := -result;           (* if no carry, negate *)
end;
```

Perhaps the reason Apple hasn't spread this around more is that it's not a very good scheme: Multiple unrelated names can map into the same FCMT—most unfriendly. (Why not just use named resources?) Anyway, anybody using this information for file transfer, for example, would do well to plan ahead for incompatible Finder changes.

Subject: The hidden Journal desk accessory ...
Source: HARROW%EXODUS.DEC@decwrl.ARPA

The hidden Journal desk accessory on the Guided Tour disk

Last week I noticed a cryptic comment indicating that the original Guided Tour disks held a desk accessory called Journal.

I tend to look through things for unusual items, and didn't remember this one, so out came the old disk for a check. The Apple menu definitely did not have this desk accessory. Hmm...

Not to be deterred, I fired up the Desk Accessory Mover, looked, and found something called .Journal. But, why couldn't I see it in the menu? Further examination of the disk's set of desk accessories showed another "invisible" item called .Print. (Notice the pattern?)

Well, using the Resource Editor, I copied .Journal (open System on the Guided Tour disk, then open resource DRVR, and you'll see it), and inserted it into the system of a test disk (put it in the same

place), renaming it to "Journal" (removing the leading period). (I don't remember why I didn't use the DAM for this: I suspect it would have worked, but this is how I did it.)

Journal now showed up in the Apple menu.

Journal now showed up in the Apple menu and, when selected, put up a new menu item labeled Journal. This yielded Record, Play, Stop and Exit items. Choosing Record and then doing a number of actions on the desktop (opening disks, looking at menus, and so forth) and then going back to the Journal menu and choosing Stop and then Play, yielded a replay of all my actions in the same time intervals that I originally performed them. (The script of my actions was kept in a file called journal.jml, which is overwritten with each new invocation of Record.)

To continue the experimentation, I fired up an application (Fontmover, I think) while recording the movements, did some stuff, quit the application back to the desktop, reselected Journal from the Apple menu to redisplay the Journal menu, chose Stop and then Play. Well, it started to replay movements, but the system crashed (ID=10) when my "Journaled" mouse began to open the application icon. I tried numerous variations, but the end result was similar: Once I attempted to open the application, things went out to lunch during playback of the journal.

Once I attempted to open the application, things went out to lunch.

However, I think I remember that when an application exits, all desk accessories are closed. If this is true (and indeed the Journal menu item was always gone when the new application came up), then I suspect that the journal.jrnl file was left with only part of the journal intact and an inappropriate end-of-file, which caused the crash.

However, a playback of the Guided Tour disk does prove that it is possible to record and play back a journal that goes between the desktop and numerous applications.

MacDraw 1.7 and ImageWriter

Subject: MacDraw 1.7 and ImageWriter
Source: Joel Malman <malman@BBNH.ARPA>

Warning (or is this a bug report?): Don't remove the ImageWriter printer driver from your MacDraw (version 1.7) disk. If you do, it will not be able to "start MacDraw cold" to create a new document. In other words, if you double-click MacDraw, you get a window you can't edit in. (The window is all gray and none of the tools work.) Removing the ImageWriter software does NOT seem to affect editing OLD MacDraw documents.

Subject: Latest official software versions
Source: Larry Rosenstein, Apple Computer

Latest official software versions

I talked to one of our software librarians to find out the latest software versions. This list is as of 4/25/85 and applies only to released software.

MacPaint: version 1.5
MacWrite: version 4.5
MacDraw: version 1.7
MacTerminal: version 1.1
System file: dated 04/08/85
ImageWriter: dated 03/06/85
Finder: dated 04/08/85 (version 4.1)
Font/DA Mover: dated 04/09/85

(The librarian didn't know the version numbers of MacProject™ or Macintosh Pascal, but there has only been one released version of those products.)

Get updates from a dealer.

As for obtaining new releases of software, the general procedure is to get the updates from a dealer. You may need to bring in the original disk as a proof of purchase. (This is especially true for programs that are not bundled with the Macintosh such as MacTerminal and MacDraw.) For distributing the new Finder, the dealers should have a System Update disk that automatically installs the new Finder, standard file package, ImageWriter, and other new files on your disk.

Subject: Adding assembly-language routines to Microsoft BASIC V2.0
Source: Dave Bursik/..cbosgd!db

Microsoft BASIC and assembly language

In addition to the method outlined in the documentation available from Microsoft (undoubtedly the "right way" to do it), the quick-and-dirty approach to calling user-supplied machine-language routines from BASIC V2.0 as described in the manual (putting the binary into an array and calling it) works fairly well once you realize that the parenthesis in the middle of the calling sequence example is supposed to be a comma and that the VARPTR value for the entry point MUST be stored as a 4-byte quantity. However, should you run into problems and get the bomb box in your ML routine, I don't know of any straightforward way to get more information using BASIC alone.

MacWrite file formats

Subject: MacWrite file formats (2.2 and 3.x, 4.x)
Source: U.DMYJ-YOUNG-DOUGLAS-MILLER%CRNL20A.BITNET @ Berkeley

There has been a lot of interest in the format of MacWrite documents, specifically in terms of the compressed data format for the 3.x and 4.x test versions that will support disk-based files. I am hesitant to type the entire documentation for 3.x and 4.x file formats here and now, but if there is a sufficient uproar, I may be persuaded to do it. [*Note: Additional information has been saved at Info-Mac. Also a large portion of this note has been omitted, with only the passages concerning the Text Compression Algorithm retained.*]

Apple came up with a scheme to compress ASCII so that two characters would fit in one byte.

Text Compression This is one of the most interesting things about MacWrite 3.x and 4.x. In an attempt to save disk space, Apple came up with a scheme to compress ASCII text so that two characters would fit into one byte. It works as follows: For any given language (in our case, English), the developers of the MacWrite system determine the 15 most common characters. Note that for almost every language, the most common character is the space character. After the space character, it varies from one language to another, based upon statistical analysis. These 15 characters are then combined to form a Str255 of length 15, which resides in the resource fork of the file, as a resource of type STR (id = 700). For the English language, it looks like this: etnroaisdlhcfp. Now, when it comes to compressing text, all you need is one nibble to represent one of these 15 characters. The nibbles that are used are O-E. The nibble F is used to indicate that the two nibbles that follow are NOT compressed characters, but a complete ASCII character. So, for example, the word "tent" would be represented as "21 32," and the word "Tent" as "F5 41 32." The string "The tent" would be represented as "F5 4B 10 21 32." Notice immediately that we gain a nibble for each compressed character, but we lose one for each noncompressed character. In the long run, this technique wins bytes. If, however, the text was pathologically bizarre—lots of capital letters, punctuation, and infrequently used letters—then we would waste space by using an extra nibble on each incompressible character. That's why there's a compressed bit. The MacWrite program determines whether it will win anything by using the compression technique, and acts accordingly.

In the long run, this technique wins bytes.

The information described above is excerpted from documentation furnished by Encore Systems, 20823 Stevens Creek Blvd., C1-B, Cupertino, California 95014; (408) 446-9565.

Kate MacGregor and Douglas Young, Decentralized Computer Services 401, Uris Hall Cornell University Ithaca, NY 14853 (607) 256-4981

Doug Young's electronic address is DMYJARTJ@CORNELLA.BITNET

Subject: REdit vs. Resource Editor
Source: MAC%Upenn-1100%upenn.csnet@csnet-relay.arpa

REdit vs. Resource Editor

I recently sent Larry Rosenstein a message commenting on the differences between the "jack-in-the-box" version of the Resource Editor, and the more recently released REdit program. For the benefit of the Info-Mac readers, here are his comments:

From: Larry Rosenstein <lsr@APPLE> Subject: Re: New vs. Old REdit

The REdit program is a completely separate program with a different target. It is NOT an improved version of the Resource Editor. The Resource Editor is intended for programmers, while REdit is intended for people translating applications into different languages. You can see this difference in the user interface and the capabilities that each provides.

REdit probably will not be extended to handle font editing, since a translator should not have to edit the fonts. The Resource Editor's font editor, however, seems to be very reliable (at least in the latest Resource Editor). REdit should be extended to rename resources, since it is necessary to translate desk accessory names.

I can see situations where REdit would be better than the Resource Editor.

The Resource Editor will eventually have the better user interface for editing dialogs, menus, and so forth. Each of those specific editors is itself a resource. Apple (or anyone) can send out an improved or brand-new editor for some resource type, in the same way that you can send out the basic resource templates.

I had never used REdit until I saw your message, since the Resource Editor is so much more powerful (even if it doesn't have the nice user interface for all editors). Having used it, I can see situations where REdit would be better than the Resource Editor, so I think that both will be

valuable tools (at least until the Resource Editor is more visual).

We are always interested in criticism and suggestions like yours. Keep them coming.

Larry Rosenstein, Apple Computer

Subject: Use of the Resume button
Source: Tom Chavez

Using RESUME

Many of you have seen that there is a Resume button on System Error dialogs. With most software it is dimmed, but developers can set a Resume routine that can be called when a system error is generated. It is set by passing an address in the InitDialogs ROMcall. This address will be called if the user presses the Resume button in the error dialog.

A good call to use is the ExitToShell Command. This will return users to the Finder, where they can choose whether to edit again. To do this in C, do the following.

```
resumeProc();
  {ExitToShell();}
```

and in your main procedure:

```
InitDialogs (resumeProc);
```

The Resume procedure will usually work, but there are a few cases where it won't for a reason that I don't know.

Hope this helps...

Switcher 2.0

Subject: Switcher 2.0 Posting
Source: Larry Rosenstein (Apple)

I am not sure whether Apple would consider the posting of Switcher 2.0 to be "inappropriate." One would expect that after posting it on CompuServe, it would start showing up in other places. (I disagree that the Switcher is in the public domain, since it does have a copyright notice.)

I agree that the person who posted the Switcher code should also have posted the instructions for reporting bugs. I am glad to see that someone took the time to do that.

I strongly urge that you report the bugs you find.

I strongly urge everyone who downloaded the Switcher to get the document that describes how to report bugs, and to report the bugs you find. If you expect to receive test copies of significant pieces of software, then you have an obligation to report the bugs.

I would prefer that you mail in your bug reports to the address given in the memo and repeated below. (Another side effect of mailing in the bugs is that Apple will get to see how successful this kind of beta testing is, and whether it was worthwhile and should be continued. On that note, you might also indicate how you received your copy of the Switcher if it wasn't from CompuServe.)

Otherwise, you can mail your bug reports to me. (But then I get all the credit for reporting them.)

When you report your bugs, try to give as much information as possible, including a step-by-step listing of how to make the bug appear. If your version of the Switcher is earlier than 2.0, try to get the 2.0 version and reproduce the bug with it.

Mail your bugs to: Ron Brannan, Apple Computer, M/S 2-O, 20525 Mariani Avenue, Cupertino, CA 95014. Thanks.

Subject: Switcher.mail
Source: John Mark Agosta <INFO-MAC-REQUEST@SUMEX-AIM.ARPA>

More on Switcher

For those interested, the accumulating mail file on Switcher bugs is <info-mac>switcher.mail

Subject: Info-Mac subscription
Source: John Mark Agosta <INFO-MAC-REQUEST@SUMEX-AIM.ARPA@STANFORD>

About INFO-MAC

INFO-MAC@SUMEX-AIM is a network interest group for the Apple Macintosh Computer. This list is SUMEX's contribution to the community of research and instructional developers and users of the Macintosh. We welcome all submissions of messages and programs in this spirit.

<INFO-MAC> is also a repository for the development tools and utilities developed at SUMEX and at other universities. Messages are scanned to filter out questions previously answered, and pure speculation or opinion.

Producing the "Stolen from Apple Computer" icon.

All requests to be added or deleted from this list, as well as comments about operations, problems, and questions, should be sent to INFO-MAC-REQUEST@SUMEX-AIM.

Subject: Key mapping in MacTerminal
Source: Tom Dimock, RGG@CORNELLC on BITNET

Keyboard Remapping in MacTerminal.

There have been several recent requests for information on how to change the key mappings for MacTerminal. The following ramble describes (I think) how to do this. I hope it is useful.

When a key is pressed in MacTerminal, the keyboard event is detected and a routine called KbdEvent is called. KbdEvent takes the key code (see *Inside Macintosh*, "Event Manager" for the key codes), and translates it to an internal form through a map stored as resource KCKI-256 (VT100) or KCKI-257 (IBM 3278). This map has one byte per possible key code from 00 to 95. The translation is simply to eliminate the unused key codes, so the next translation table can be more compact.

KbdEvent then takes the output of KCKI and translates it through a second map that's stored as resource KICH-256 (VT100) or KICH-257 (IBM 3278). This map has 16 bytes per entry, which correspond to the possible permutations and combinations of the status of the Option, Caps Lock, Shift and Command keys. The following table tells which is which. (*Each U means UP, D means DOWN, for the Option, Caps Lock, Shift, and Command keys, respectively.*)

The entries can either be characters or action codes.

1 UUUU; 2 UUUD; 3 UUDU; 4 UUDD; 5 UDUU; 6 UDUD; 7 UDDU; 8 UDDD; 9 DUUU; 10 DUUD; 11 DUDU; 12 DUDD; 13 DDUU; 14 DDUD; 15 DDDU; 16 DDDD.

The entries in this table can be either characters to transmit (values between 0 and 127) or action codes (values between 128 and 255). The action codes are interpreted through a rather complex scheme involving a state table (resource STTB) and a bunch of hard-wired logic. Fortunately, it is not really necessary to understand that part to accomplish most key re-mapping projects.

Suppose, for example, we wish to make the Enter key act the same as the Return key. Tracing through the various resources, we see that key code 36 (the Return key) is mapped to 37 by the KCKI resource. Looking then at the 37th 16-byte entry in the KICH resource, we find that all eight entries are 13, the ASCII carriage-return code. To make Enter (key code 52) behave the same way, we would either change its KCKI entry to map to entry 37 in the KICH resource, or we could change the Enter key entry in KICH.

(My thanks to Martin Haeberli, coauthor of MacTerminal, who explained most of this to me.)

Dartmouth College: Computing Activities
By Steve Maker

Dartmouth College has thoroughly embraced personal computing via individual ownership, network access, and courseware development. Students are stongly encouraged to buy a personal computer. In 1984, approximately 80 percent of the 1,000 entering freshman did so. Nearly 3,000 Macintoshes have been sold to students, faculty, staff, and administrators. There are several public clusters of Macintoshes, and there are 22 public print stations in residence halls.

Students are strongly encouraged to buy a personal computer.

In order to make the most effective use of campus Macintoshes, we have connected AppleTalk networks to our campuswide Kiewit network, which runs AppleTalk protocols at the lower levels. All students with a Macintosh have access to the entire network of large computers and peripherals from their residence hall rooms via our DarTerminal graphics terminal emulator (which supports multiple simultaneous connections and downloading of Macintosh software). There are now about 2,600 such residence hall AppleTalk ports.

All students with a Macintosh have access to the entire network of large computers and peripherals from their residence hall rooms.

The Courseware Development Group, in conjunction with interested faculty, is leading the development of high-quality educational software. This courseware includes both programs specific to particular topics and general authoring tools that enable instructors to write their own "scripts" or lessons. Programs developed to date include work in sociological statistics, philosophy, languages, music, computing, and teaching Macintosh development. Projects in progress are in the areas of geomorphology; map atlas study with zooming, overlaying and querying; and a general text and picture question-and-answer program. Grants from the Sloan and Keck foundations are supporting some of these efforts. It is our policy to make this software available to interested members of the academic community at the cost of distribution only.

Steve Maker is the director of courseware development at Dartmouth College in Hanover, NH.

Stanford University: Faculty Author Development Program (FAD)
This year, Stanford professors are using microcomputers as an instructional medium in courses as varied as "Introduction to Accounting" and "The France of Louis XIV." Their students complete homework assignments on microcomputers installed in Meyer Library. These professors are part of the Faculty Author Development (FAD) program begun by the Office of Academic Computing and Information Systems (ACIS) to encourage faculty development of instructional materials on microcomputers.

These professors are part of a Faculty Author Development (FAD) program, designed to encourage faculty development of instructional materials on microcomputers.

Instruction and Research Information Systems (IRIS), the division of ACIS responsible for the FAD program, provided the support for the 11 proposals chosen as pilot projects last summer. Support ranged from simply providing equipment to providing design assistance and programming—as well as equipment.

In December 1984, ACIS again solicited proposals from the Stanford faculty. Approximately 50 were received from faculty representing more than 20 academic departments. The variety and sophistication of the ideas presented indicates growing enthusiasm for incorporating the use of microcomputers into curriculum.

By the fall of 1986, there should be some 40 courses that integrate instructional applications developed as a result of the FAD program. With FAD, ACIS hopes to increase the number of faculty members who have experience and expertise in computing, so that they can play a part in deciding the direction that computing should take at Stanford.
For more information about FAD, contact IRIS at (415) 497-1055.

Rice University:
The Macintosh on Campus

Macintosh information is distributed via on-line news facilities, old-fashioned bulletin boards, and newsletters.

The most obvious influence of the Macintosh can be seen in computer science education. Last semester, 273 students in the introductory courses were taught to use MacWrite, MacPaint, and Macintosh Pascal. The computer science department acquired 60 Macintoshes (and enough printers to accomodate them). The Macintosh is also visible in the business school, the language departments, psychology, and mathematical sciences. As we have sold more than 1,000 Macintoshes on campus to a population of less than 4,000 people, there are no doubt many other uses as well.

Macintosh information is distributed via on-line news facilities, old-fashioned bulletin boards, newsletters, liaisons in each residential college, and the campus Mac User Group. There is also a demonstration facility that is used to assist faculty and students in deciding what hardware and software to buy.

Boston College:
Integrating the Mac

The university supported the design of a Faculty Microcomputer Resource Center.

In addition to preparing **Wheels for the Mind**, Boston College has begun to integrate the Macintosh into its campus academic and administrative environment. During the past year, several hundred undergraduate students took an introductory computer course that introduced them to MacWrite, MacPaint, Multiplan, Microsoft Chart, Filevision, and Microsoft BASIC. In the computer science department, there were courses in Pascal, assembly language, graphics, and C. Classrooms were specially equipped with projection systems to facilitate the actual use of the Macintosh in the classroom setting.

The campus has a student instructional lab that contains 80 Macintoshes with second disk drives and shared printers. The new research library contains another cluster of 30 public Macintoshes and the School of Management has another cluster for use by MBA students. The university supported the design of a Faculty Microcomputer Resource Center that has Macintosh 512Ks networked to a LaserWriter, a wide variety of hardware and software products, and a software development station. This facility is in constant use by the faculty. Faculty members using Macintoshes include those who teach Slavic languages, finance, math, computer science, chemistry, English, nursing, education, history, music, and accounting.

Miscellaneous

LASERWRITER AGREEMENT

Apple Computer and Sun Microsystems announced an agreement under which Sun will purchase and resell the Apple LaserWriter printer. Sun Microsystems will take the laser printer into the computer-aided engineering, CAD, and CAM markets. The company sees the LaserWriter as being particularly useful in computer-aided publishing for in-house previewing of typeset documents, CAD/CAM applications for printing both two- and three-dimensional models and schematics, architectural and construction applications for printing floor plans and wiring diagrams—and for all Sun's customers who need high-quality, general-purpose printing.

Sun will purchase and resell the Apple LaserWriter printer.

Sun Microsystems designs, manufactures, and markets high-performance, general-purpose workstations for technical professionals. The workstations are based on the MC68010 virtual memory processor, integrate Sun's operating system (which is derived from the Berkeley 4.2 version of UNIX), and include major Sun enhancements such as networking, graphics, and an advanced user interface.

GET A NEW "PHONE BOOK"

The multivolume *Inside Macintosh* (the basic reference manual for Macintosh software development) is now available in a softcover "phone book" format at a retail price of $25. The phone book contains all documentation updates through February 1985. A hardcover version is scheduled to be printed this summer.

WRITE TO LEFT

Two right-to-left word-processing packages are currently under development for the Macintosh. One, called Alkaatib, has been announced by Arabic Software Associates of Sunnyvale, CA; (408) 738-1011.

An Israeli-produced Hebrew word processor, Mousewrite, is also near completion. The address for the U.S. distributor of Mousewrite is Davka Corporation, 845 N. Michigan Avenue, Suite 843, Chicago, IL 60611.

Technical notes available.

TECHNICAL STUFF

Apple has announced that it intends to widely distribute a series of *Macintosh Technical Notes*. Published approximately monthly (in groups of 10), the notes will cover technical development and *Inside Macintosh* material. If you would like to receive these notes directly, send a subscription request and $20 for a year's worth of notes to:

Macintosh Technical Notes
Apple Computer, Inc. MS 3-T
20525 Mariani Avenue
Cupertino, CA 95014

HELP A READER OUT

Bob Ashworth from Southern Illinois University at Carbondale (Carbondale, IL 62901) would appreciate any information readers have on dealing with "Teletex" for the Macintosh. He needs a program that creates frames for Teletex, and one that allows frames to be downloaded to the Macintosh.

HUMANITIES

A newsletter devoted to the use of computers for the analysis and teaching of literature.

Computing the Humanities is a newsletter devoted to the use of computers for the analysis and teaching of literature. While the focus will be on microcomputers, all aspects of computing relevant to the humanities will be covered. This newsletter is prepared at the Center for Computer Applications in the Humanities, University of Nevada, Las Vegas, NV 89154; Scott Locicero, codirector (associate professor of history) (709) 739-3349/3344; Gary Palmer, codirector (associate professor of anthropology) (702) 739-3590/3379.

This newsletter will soon be available on-line, because arrangements are being made with Club Mac to carry the text of the newsletter as an item in their BBS. You will need to belong to Club Mac, and have access to a computer with a modem and a terminal program. For information about Club Mac, write 735 Walnut Street, Boulder, CO 80302; or call (303) 449-5533.

TRAVELING WITH YOUR MICROCOMPUTER

If you are planning to travel with your microcomputer this summer, either overseas or simply across the country, there are some basic rules and warnings you should be aware of.

Warranty Service

Taking an Apple computer overseas voids the warranty.

If your machine is under warranty, you can receive warranty service anywhere in the United States. You will probably be asked to show proof of purchase. (Make sure you have your original receipt.) Taking an Apple computer system overseas voids the warranty.

Power

Of course, any microcomputer used on campus will function normally anywhere in the United States. You should be aware, however, that most European countries use a different standard for power than we do. Our electrical supply provides us with 110 volts at 60 hertz. Overseas power is usually 220 volts at 50 hertz. For use overseas, a microcomputer made for use in this country must be equipped with a voltage step-down transformer. The microcomputer must also be adapted for the proper plug configuration. Apple Computer suggests that you purchase the necessary modification equipment in the country in which you plan to use your machine.

X-rays

The X-ray devices used for airport security can damage both the data stored on a floppy disk *and* the information stored in the ROM of your computer. If possible, you should request that your equipment be hand inspected and carried around X-ray security devices.

If possible you should request that your equipment be hand inspected and carried around X-ray security devices.

Security

Security against damage and theft are serious considerations for the traveler. It is recommended that you purchase a hard-shell shipping case for your microcomputer if you're going to be moving around much, especially by airplane. The case will protect the machine from physical damage caused by impact or vibration, and also disguise its contents. For shorter trips, the original packing case can provide some protection.

Finally, it might be wise to check for import/export information with U.S. Customs and the consulate of any foreign country you plan to visit.

(Reprinted from Volume 1, Number 8 of *Penn Printout,* a publication of the Computing Resource Center, University of Pennsylvania.)

HYPERDRIVE HARD-DISK INSTALLATIONS

Service and support notice for HyperDrive installations.

If properly installed by an authorized Apple dealer or by General Computer, the recently introduced "Clip" version of HyperDrive will not void Apple's 90-day warranty or Apple*Care* coverage. The "Clip" attaches the HyperDrive controller board to the Macintosh's 68000 microprocessor without modification of the Macintosh logic board. As such, all modules, including the Macintosh power supply, are eligible to be returned to Apple for exchange provided they are repairable and have not been damaged due to improper installation.

Components of Macintoshes that received HyperDrive installed under old procedures (which required desoldering the 68000) are eligible for coverage under Apple's 90-day warranty or Apple*Care* **except** the modified Macintosh logic board. All other modules are eligible for exchange provided they are repairable and have not been damaged due to improper installation.

This notice applies only to Macintoshes modified by the addition of a HyperDrive and does not apply to other modifications.

Language keyboards available.

FOREIGN-LANGUAGE KEYBOARD AND SOFTWARE

Macintosh foreign-language keyboards and software are available for purchase through the Apple University Consortium and the Apple University Purchase Program. The following versions are available: Spanish, German, French, Italian, and French Canadian. Each package includes a localized keyboard, an owner's manual, a MacWrite manual and software, a MacPaint manual and software, a System disk, and Guided Tour disks of MacWrite/MacPaint and the Macintosh. These products can help strengthen your language department by offering a low-cost method for customizing instruction based on localized software. By changing only the keyboard, and using the appropriate localized software, you can use your Macintosh as a true international machine. It also allows faculty members who are working with colleagues at international schools to exchange materials more easily.

Apple Computer reorganizes.

APPLE STREAMLINES ORGANIZATION

Apple Computer has reorganized in an effort to streamline operations and increase efficiency, while positioning the company for significant growth in the future.

According to Apple President and Chief Executive Officer John Sculley, "Apple was among the first to recognize that the growth rate of the computer industry was slowing, and quickly took steps to respond. We are restructuring along financial lines to create a more efficient organization and expect to emerge from this period as a highly focused, unified, and flexible company."

Steve Jobs, Apple's cofounder and chairman of the board, will take on a more global role in new product innovations and strategies. Sculley said, "Steve is a visionary who helped shape the personal computer industry and personally led the team that developed and introduced Apple's successful Macintosh computer. As chairman of the board, he will continue to be a creator of powerful ideas and the champion of Apple's spirit. Apple is built on the vision that the development of great products that bring the power of computing to individuals can change the world. We have made these organizational changes now to focus Apple's resources on our two primary markets, education and small and medium-sized businesses. We will reach these markets by putting primary emphasis on our strong dealer distribution channel. We remain firmly committed to both the Apple II and the Macintosh product families and will accelerate development efforts on new products that enhance and build on our product strategy."

Editor's note: Some of the organizational changes include: The product divisions (formerly Apple II and Macintosh) are now one group under Del Yocam (former Apple II Division vice president) as executive vice president and Jean-Louis Gassee (formerly general manager of Apple France) as vice president of product management. Yocam is also responsible for Distribution and Manufacturing.

The sales and marketing group continues to be headed by Bill Campbell as executive vice president, with Tom Marano as vice president of Sales and Mike Lorelli as director of Marketing. Dan'l Lewin is education marketing manager (K-12 and University) reporting to Mike Lorelli. Bud Colligan (former manager of Macintosh international marketing) has accepted the position of manager of university marketing. Lynn Takahashi and Martin Haeberli will remain in their positions supporting the university marketplace. Michael Tchao, a recent Stanford graduate, will also be working for the group.

The majority of the K-12 marketing team reporting to Dan'l Lewin comes from the Apple II Division. Burt Cummings will manage university sales and Jeff Barco will remain in charge of sales programs for the university market. Jim Buckley (new to Apple) will manage all of education sales (K-12 and University).

Mike Spindler continues as vice president of the International division.

The reorganization should have a positive effect on the educational market.

Macintosh® User Groups

Amateur Computer Group of New Jersey
Macintosh Users Group (ACG-NJ MUG)
698 Magnolia Road
North Brunswick, NJ 08902
Keith Sproul; 201-821-4828

A.P.P.L.E.
21246 68th Ave. S.
Kent, WA 98032
(206) 872-2245

Apple SAC
P.O. Box 254645
Sacramento, CA 95825

Association of Apple 32 Users
P.O. Box 634
Santa Clara, CA 95052
Sid Hymes; 415-932-2800

The Anchorage Mac User Group
1200 Dimond #812
Anchorage, AK 99515
Nevin McClintock; 907-344-6465

Boston Computer Society
Macintosh Users Group
1 Center Plaza
Boston, MA 02108
Jack Hodgson; 617-367-8080

Capitol Macintosh Users Group
9431 Georgia Ave.
Silver Springs, MD 20910
George Perantonakis; 301-585-4262

Carnegie-Mellon Macintosh User Group
Box 661, 515 Margaret Morrison St.
Pittsburgh, PA 17213
Ed Tecot; 412-578-4097

Carolina Apple Core
P.O. Box 31424
Raleigh, NC 27603

Catawba Valley Lisa/Macintosh User Group
Rt.1 Box 540-19AB
Conover, NC 28613
Steve Baker; 704-256-7035

Club Mac
735 Walnut
Boulder, CO 80302
Stephan K. Elliott; 303-449-5533

Club Mac MidWest
6904 Hopkins Road
Des Moines, IA 50322

Club Mac of M.O.
111 Atherton Dr.
Metairie, LA 70005
Simon Steiffer; 504-831-8275

Conejo Valley Macintosh Users Group
3637 Thousand Oaks Blvd.
Westlake Village, CA 91362
Paul McQuillan; 818-883-7400

Macintosh Users Group, Drexel University
21 Saddle Lane
Cherry Hill, NJ 08002
Steve Weintraut; 609-667-3131

East Bay Macintosh Group
1515 Sloat Blvd., Suite 2
San Francisco, CA 94132
Stan Guidero; 415-566-2342

El Paso Mac User Group
5534 Ketchikan
El Paso, TX 79924
Donald Smith; 915-751-3508

Eugene Macintosh Users Group
P.O. Box 10988
Eugene, OR 97440
Richard Wanderman; 503-345-2393

Fayetteville Macintosh User Group
1551 N. Leverett #47
Fayetteville, AK 72701
Clifford Goeke; 501-442-7040

Fortune Corp. Mac Users
2325 Collins Road
Pittsburgh, PA 15235
Bob Wilde; 412-963-1424

Maclub - The Israeli Mac Users Club
13 Nehardeaa St.
Tel Aviv, Israel 64235
Yariv Nachshon

KMUG - Kirksville Macintosh User Group
100 W. LaHarpe
Kirksville, MO 63501
Vic Treutel

Los Angeles Macintosh Users group
1201 Wilshire Blvd #405
West Los Angeles, CA 90025
Eric Anderson; 213-392-5697

MacDIG - Macintosh Development Interest Group
Rm. 3226 Merrill Engineering Bldgs.
University of Utah
Salt Lake City, UT 84112
Joe Buchanan; 801-581-8814

Mac Desert Users Group
36953 Haywood Ave.
Barstow, CA 92311

Mac Mania
964 Nottingham Dr
Corona, CA 91720
Bruce Rouman; 714-735-6814

MacExplorers - Phoenix
c/o APSCO
P.O. Box 21666, M/S 6079
Phoenix, AZ 85036
Steve LeClair; 602-932-5300

Macintosh, International Apple Corps
908 George St.
Santa Clara, CA 95050
408-727-7652

Macintosh User Group
4306 Upton Ave. S.
Minneapolis, MN 55401
Mike Carlson; 612-924-4120

Macintosh Users Group
924 Holbrook
Ft. Walton Beach, FL 32548
E. Schattner; 904-862-4908

Macintosh User Group of Henderson
116 Pine Street
Henderson, TX 75652
John Biggs

Macintosh User Group - Tim Kelly
ICOR 200 W. Washington
Fairfield, IA 52556

Mesa Mac Group
Mesa Computer Mart
1153 E. Main Street
Mesa, AZ 65203
John Colbeck

Miami Apple User Group, Macintosh SIG
3250 Mary St., Suite 305
Miami, FL 33133
Stanley Kuperstin; 305-448-4411

Micronet Apple Users Group (MAUG)
CompuServe Page PCS-51
Neil Shapiro, SYSOP, 76703,401
Dennis Brothers, ALTSYSOP, 70065,172

Mid Cities Mac Group
1209 Glenn
Evless, TX 76039
817-540-0063

MUGWUMP
Computer Services - Uris Hall
Cornell University
Ithaca, NY 14853
Chris Pelkie; 607-256-4981 X205

NAC MAC Users Group
4304 Friar Tuck
Nacogdoches, TX 75961
Michael Holloway

National Apple Pi
Wayland Square P.O. Box 2198
Providence, RI 02906

New York/New Jersey MUG
50 River Drive
Marlboro, NJ 07746
Louis Aversano; 201-536-8360

New York Macintosh Users Group
P.O. Box 6686 Yorkville Station
New York, NY 10128
Cheryl Sandler, Steve Doochin
212-532-4949

North Florida Macintosh User Group
P.O. Box 10286
Jacksonville, FL 32247
Chris Allen; 904-396-6952

Oak Ridge MACUSER's Group
Route 2 Box 65E
Oliver Springs, TN 37840
Roger Perkins; 615-435-1120

Oklahoma City MacUsers
P.O. Box 6915
Lawton, OK 73505
James Carpenter

Ottawa Mac Users Group
32 Alder Cresent
Ottawa, Ontario K1B 4X6
Ted & Susan Roseman

Peninsula Lisa Users Group
c/o Computer Connection
214 California Street
San Francisco, CA 94111
Joan Dickey; 415-781-0200

San Diego Macintosh Users Group
P.O. Box 12561
La Jolla, CA 92037
Charlie Jackson; 619-566-3939

Santa Barbara User Group
c/o Computer Terminal
90 W. Highway 246
Buellton, CA 93427
Andrew Bang; 805-688-1713

SEMCO Mac Pac
P.O. Box 02426
Detroit, MI 48202
Dennis Krystowiak

Shenandoah Macintosh Users Group
1131 S. Winchester Ave.
Waynesboro, VA; 703-434-4563

Show Page Macintosh Users Group
2040 Polk Street, Suite 340
San Francisco, CA 94109
Betsy Radford; 415-441-8648

Southeastern Michigan Mac Users Group
9720 Lakewood
Grosse Ile, MI 48138
Thomas Vetterani; 313-671-5535

South Jersey Mac Users
221 Timothy Ct.
Cherry Hill, NJ 08034
Larry Margulis; 609-428-4429

TCS Macintosh Users Group
c/o The Computer Store
740 North Main Street
Providence, RI 02904

Team Mac
Box 203
Yankton, SD 57078
Roger Deitrich; 605-665-8402

The University MacUser Group
Box 320, The Texas Union
The University of Texas at Austin
Austin, TX 78713
John Glanville; 512-472-0226

Victoria Macintosh User's Group
C/O Apple Victoria
P.O. Box 5336-B
Victoria, British Columbia
V8R 6S4 Canada
Dave MacKeen; 604-479-4395

Ventura County Macintosh Club
1413-D South Victoria Avenue
Ventura, CA 93033
Brian Wu; 805-499-2824

Yale Macintosh Users Group
Box 220 Yale Station
New Haven, CT 06520
Phil Rubin; 203-436-5112

For info regarding elementary and secondary schools:
Apple Computer Clubs
P.O. Box 948
Lowell, MA 01853
617-452-9979

PUBLICATIONS

A+ Magazine
Ziff-Davis Publishing Company
One Park Avenue
New York, NY 10016

Icon Concepts - The MACazine
113 East Tyler Street
Athens, TX 75751

Mac News - Guidebook to Products
110 Baldwin St.
Fall River, MA 02720

MacTech (for Programmers)
P.O. Box 846
Placentia, CA 92670
David Smith; 714-993-9939

MacWorld
Subscription Department
P.O. Box 20300
Bergenfield, NJ 07621
Editorial
555 DeHaro St.
San Francisco, CA 94107

Semaphore Signal
207 Granada Dr.
Aptos, CA 95003

The Macintosh Connection Newsletter
Hi-Tek Publications
P.O. Box 99
North Salem, NH 03073

Macintosh Books

Pascal on Macintosh Learned Through Games
Author: Peter Bock
Audience: High School
Available: Not known
Publisher: Computer Science Press

Pascal on the Macintosh
Author: Dr. Lowell Carmony
Audience: High School
Available: Not known
Publisher: Computer Science Press

Introduction to Pascal
Author: Steve Charnicoff
Audience: General
Available: August 1984
Publisher: Not known

Scientific Programming Using Macintosh Pascal
Author: Richard E. Crandall, Reed College, Department of Physics
Audience: College
Available: July 1984
Publisher: Wiley

An Introduction to Mathematics and Computing Using Macintosh Pascal
Author: Richard E. Crandall, Reed College, Department of Physics
Audience: College
Available: July 1984
Publisher: Wiley

Macintosh Apple
Author: Casey Green, USLA, Higher Education
Research Institute
Audience: General
Available: Summer 1984
Publisher: Dilithium Press

Macintosh Pascal: A Hands-On Approach
Author: Ted Lewis, Oregon State University
Audience: College
Available: March 1985
Publisher: Dilithium Press

Programming the Macintosh in Assembly Language
Author: Steve Williams
Audience: College
Available: Now
Publisher: D.C. Heath

The Macintosh Toolbox
Author: Thomas A. Blackadar
Audience: College
Available: Not known
Publisher: D.C. Heath

The Easy Guide to Your Macintosh
Author: Joseph Caggiano
Publisher: Sybex Books: Berkeley

Using & Programming the Macintosh
Author: Frederick Holtz
Pub: Tab Books, Inc: Blue Ridge Summit, PA

MacWork MacPlay
Author: Lon Poole
Publisher: Microsoft Press: Bellevue, WA

The Apple Macintosh Book
Author: Cary Lu
Publisher: Microsoft Press: Bellevue, WA

Macintosh for College Students
Author: Brian Pfaffenberger
Pub: Sybex Books: Berkeley, CA

The Macintosh
Author: Bill O'Brien
Publisher: Bantam Books: New York

Introducing The Macintosh
Author: Duff
Publisher: McGraw-Hill

Introduction to Macintosh Basic
Author: Kamins
Publisher: Apple Press

Presentation Graphics on the Mac
Author: Lambert
Publisher: Microsoft Press

Multiplan Made Easy, Mac Edition
Author: Ettlin
Publisher: Osborne

Using MacWrite and MacPaint
Author: Field
Publisher: Osborne

Microsoft Word Made Easy/Mac Edition
Author: Hoffman
Publisher: Osborne

Introducing the Apple Macintosh
Author: Connoly/Lieberman
Publisher: SAMS

Macintosh User's Guide
Author: McComb
Publisher: SAMS

JAZZ on the Macintosh
Author: Caggiano & McCarthy
Publisher: Sybex Books

Mac Graphics for the Macintosh
Author: Grillo & Robertson
Publisher: CBS Computer Books

Mastering Your Macintosh
Author: Skyvington
Publisher: Prentice Hall International

Macintosh Revealed: Vol. 1 Unlocking the Toolbox
Author: Chernicoff
Publisher: Apple Press (Hayden)

Basic Microsoft BASIC for the Macintosh
Author: Coan & Coan
Publisher: Hayden Macintosh Library

Inside MacPaint
Author: Young
Publisher: Microsoft Press

The Macintosh BASIC Handbook
Author: Blackadar & Kamin
Publisher: Sybex Books

Articles of Interest

McPIC (Pictures)
INFOWORLD
8/13/84 P. 61

MacPaint (Drawing/Art)
MACWORLD
Apr. 84
POP. COMPUTING
Nov. 84 P. 90

MacDraw Scaled Drawing
MACWORLD
Sept. 84 P. 51
MACWORLD
Nov. 84 P. 115

Elements of Graphic Design
MACWORLD
Feb. 85 P. 122

A MacCopy Program
A+ MAGAZINE
Oct. 84 P. 131

Mac Criticisms
A+ MAGAZINE
Oct. 84 P. 141

The Mac Makes Music
A+ MAGAZINE
Aug. 84

Should Students Buy a Computer?
POP. COMPUTING
Oct. 84 P. 115

A Look at Micros on Campus
POP. COMPUTING
Oct. 84 P. 118

The 512K Macintosh
MACWORLD
Nov. 84 P. 56

Behind the Finder
MACWORLD
Nov. 84 P. 135
Playing Games on the Mac
POP. COMPUTING
Dec. 84 P. 29

Macintosh Software
PER. COMPUTING
Dec. 84 P. 110

Future of the Micro
POP. COMPUTING
Jan. 85 P. 89

Products from Reed College
BYTE
Jan. 85 P. 415

Penny-Wise Programs
Public Domain Software
A+ MAGAZINE
Jul. 85 P. 101
Aug. 85 P. 123

A look at the New Finder
A+ MAGAZINE
Jul. 85 P. 131

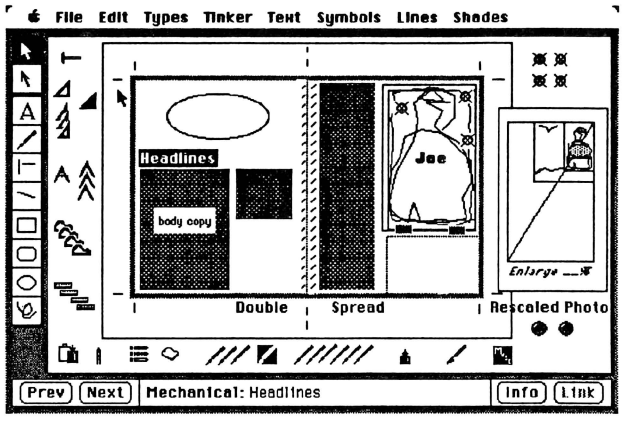
Business Simulation Games
INFOWORLD
Jul. 8, 85 P. 38

The Resource Editor
MACWORLD
Jul. 85 P. 131

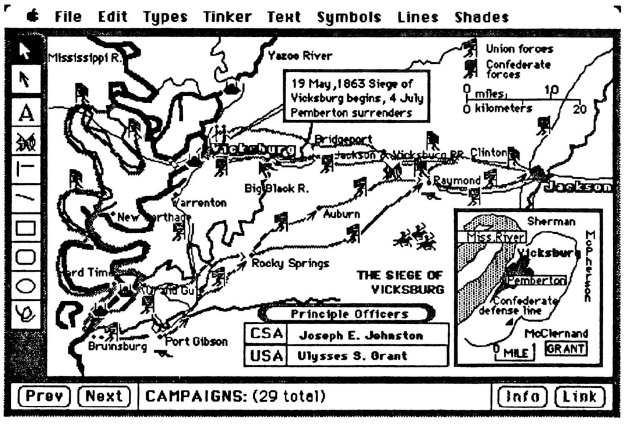
The Writer's Tool Chest
MACWORLD
Jul. 85 P. 46

A Look at Switcher
MACAZINE
Jun. 85 P. 93

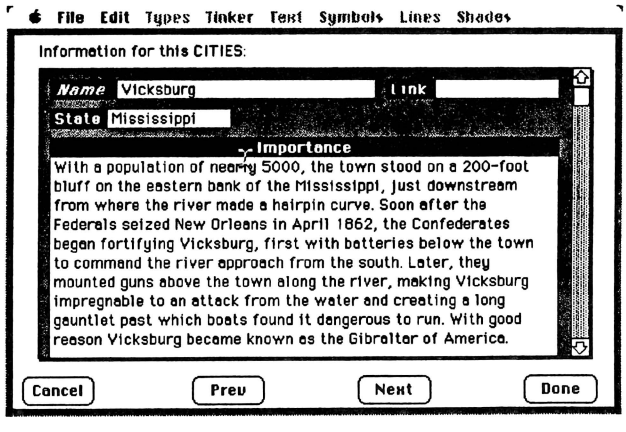
Macs in Schools
MACAZINE
Jun. 85 P. 27



The picture above is an example of what you can create with Filevision (a data-base management package). This one allows you to get information helpful in designing a publication. See MACINTOSH PRODUCT SECTION for information.



The above picture is a Filevision map of an historical site. By clicking on the appropriate area, you can get an information form (below) that gives you more detailed information about the event.



Work in Progress

This section of **Wheels for the Mind** deals with the various projects being done at universities, both in the United States and in other countries.

Astronomy

William Sterner,
Lead Staff Analyst,
Information
Technologies and
New Services
Computation Center,
University of
Chicago,
5737 University Ave.
Chicago, IL 60637;
(312) 962-7172
STAFF.BILL
@UCHICAGO

Project: Instrument Panel

Robert Loewenstein of Yerkes Observatory is developing a remote control "instrument panel" for use with a new 3.5-meter telescope to be built in New Mexico. The panel will allow a user to connect the observatory through a satellite link, switch in one of seven instruments, open the dome, position the telescope, and take data. Thus, the observer will have real-time feedback on the quality of the data as well as control over the telescope from anywhere a satellite link can be established. The physical instruments that the Macintosh will collect data from are two types of infrared detector arrays. One is a 32-channel spatial array that is displayed in two kinds of strip charts. The other is a linear array of 32 channels that handles spectral data that is displayed as a graph of the raw spectrum. The prototype version of the program consists of five windows: three data and two control. It was written on a Macintosh 512K in a beta release of Kriya Systems' Neon.
Current status: Unknown.

Project: Spaceflight Instrument Data Collection

The Laboratory for Astrophysics and Space Research is using a Lisa to perform bench tests, accelerator calibration, and eventually, data collection from spaceflight instruments that measure cosmic rays. The instruments consist of an array of silicon detectors, which are reverse-biased diodes that produce a pulse when ionizing radiation passes through them. This work is being done by James Beatty and others under the direction of John Simpson.
Current status: Unknown.

Biology

Special Projects Coordinator,
Microcomputing Program,
Drexel University, 32nd
and Chestnut Street,
Philadelphia, PA

Dr. Ron Hellenthal,
Dept. of Biology,
University of
Notre Dame,
Notre Dame, IN
46556;
(219) 239-7255

Project: Botanical Classification

A plant identification program to enable students to identify any one of 90 different shrubs and trees in the local environment. (Existing data base is specific to flora of the Drexel University campus.)
Current status: Completed.

Project: Identifying Biological Specimens

AUTOKEY is an interactive system (written in Absoft's FORTRAN) that is designed to provide quick and accurate identifications of biological specimens for people with little direct experience in biological identification. The identification scheme is based on a data matrix rather than the linear character sequence of traditional taxonomic keys. This results in a multipath approach that avoids uncertain character evaluations, permits specimen characters to be missing, and allows for the use of nontraditional characters such as behavior, geographical distribution, and color. Data sets for the identification of
approximately 100 groups of organisms (mostly aquatic insects) have been developed.
Current status: Unknown.

Project: Evaluation of Natural Habitats

ERAPT is an interactive information retrieval and analysis system that permits the evaluation of natural habitats and organism assemblages using stored information on the environmental requirements and pollution tolerances of biological species. The system displays the collective requirements of any group of species, predicts the species likely to occur under any set of environmental conditions, and evaluates groups of species for incompatibilities in environmental requirements that should preclude their coexistence under a single set of environmental conditions. The system is designed for the screening and quality assurance of environmental information and as a tool for environmental managers. The development of this system is being sponsored by a grant from the U.S. Environmental Protection Agency Corvallis Environmental Research Laboratory. Presently, ERAPT data bases contain 48,413 environmental data values from 402 genera and 1,689 species of aquatic organisms from several distinct groups.
Current status: A prototype version of this system is currently working on a Macintosh 512K. A full implementation of the system on the Macintosh XL is expected to be completed by August 1986.

Project: Labtutor

Dr. Ron Hellenthal,
Dept. of Biology,
University of
Notre Dame,
Notre Dame, IN
46556;
(219) 239-7255

Labtutor (Lisa Pascal) is a package that uses its own command interpreter to process procedure files into interactive laboratory tutorials that present complicated analytical procedures as simple step-by-step instruction sets. The system can automatically check and evaluate intermediate and final results for errors and incompatibilities. An initial set of procedure files is being developed for the chemical analysis of drinking water.
Current status: This system is still in an early development phase, and is not expected to be completed until late 1987.

Chemistry

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Molecular Editor Compiler

A software-based molecular-model construction kit. Molecules or crystal structures of up to 99 atoms can be displayed in a three-dimensional ball-and-stick representation and rotated about any of three axes. Position coordinates for each atom and bond connective are entered in two tables. The resulting displayed structure can be edited directly on the screen. Users can store and retrieve structures as files, compare up to nine structures by rapid sequential display, change the displayed size of the molecule, measure and display bond lengths and bond angles, and combine two subunits (skeleton and functional group) to form a new molecule. Package includes the editor itself and a number of basic molecular and crystal structures.
Current status: Completed.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Prelabs

A series of programs that enable students to test their understanding of concepts and procedures that they will be using in their experiments. Designed to clear up misunderstandings before experiments are begun. Written with Drexel's Lesson-Writer authoring tool.
Current status: Probable completion in September 1985.

The Personal Computing Center, 1 McNutt Hall, Dartmouth College, Hanover, NH 03755; (603) 646-3249.

Project: Orbital Mixing

Orbital Mixing depicts the molecular orbitals derived from the 1p orbitals overlapping the PI manner. All orbitals are viewed perpendicular to the 2p nodal plane. The radii of the circles shown are proportional to the atomic orbital coefficients and the areas of the circles are thus proportional to electron density.
Current status: Orbital Mixing is finished, and is now being used in intermediate-level chemistry courses.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Controller for Laboratory Equipment

A data-acquisition program for the EMM-2048 or Universal Microcontroller. This program sets up the communication protocol necessary to access digitized data collected from laboratory experiments.
Current status: Probable completion September 1985.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street Philadelphia, PA

Project: Polymerizations

Simulates chemical reactions that occur in the polymerization process. Specifically designed to graphically show the difference between step and chain growth polymerizations.
Current status: Unknown.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street Philadelphia, PA

Project: R/S

Illustrates the Cahn-Ingold-Prelog stereochemical designation system: presents the correct designation procedure for molecules with one chiral center, using static text and four interactive examples; and presents nine interactive problems of increasing complexity. The last two problems have the chircal center located on a ring. Includes a subroutine demonstrating appropriate molecular rotations, the capability of handling molecules with zero and two chiral centers, stereochemical designations for alkenes, and simple stereochemical operations.
Current status: Completed.

Chemistry

Special Projects Coordinator,
Microcomputing Program,
Drexel University, 32nd and Chestnut Street
Philadelphia, PA

Project: Peri-Chart

A data base of atoms and elements that uses the periodic chart as a control structure. User can obtain data for such properties as isotopic masses and abundances, electronegativities, oxidation states, and valence electron configurations. Tabulation and plotting capabilities are features. User can learn by exploring or using gamelike practice activities within the program. Can also serve as a "chemical calculator" by supplying molecular weights when formulas are given. Since the data are easily edited, it should also be useful to advanced students and professional scientists.

Project: Biochemistry of the Cell

David Baka, Bill Howell,
UW - Madison,
619 N. Lake St., Madison

This application shows how cell organelles work together to produce and store biochemicals needed to maintain life. Complete with full documentation and charts of metabolism.
Current status: To be completed by August 1986.

Project: Chemical Curve Fitting

Dr. Maurice E. Schwartz,
Department of Chemistry,
University of Notre Dame,
Notre Dame, IN;
(219) 239-7744

We have been using a general, linear, least-squares program on the Macintosh/Lisa for about four months, in courses ranging from first-year undergraduate survey to graduate laboratory technique. Written in Absoft's FORTRAN, the programs are specially designed for chemical applications, providing for extensive error checking, the ability to correct/eliminate data, to reanalyze given data many times, and more. An important feature is the multitude of transformations provided, which allow "raw" data to be converted to new forms important in chemistry (for example, logarithmic, inverse, and exponential). Future extensions will include provision for graphic display and higher polynomial fits.
Current status: Unknown.

Project: Quantum Chemistry

Dr. Maurice E. Schwartz,
Department of Chemistry,
University of Notre Dame,
Notre Dame, IN;
(219) 239-7744

(1) Particle in one-dimensional box with finite wall.
(2) Simple Huckel molecular orbital.
(3) Ab initio self-consistent field molecular orbital plus configuration interaction.
These are all being cleaned up for easy access by the novice user.
Current status: Spring 1985, we expect to use (1) in freshman honors chemistry, (2) with junior physical chemistry students, and (3) with seniors and graduate students. (Absoft FORTRAN)

Project: Acid/Base Titration for Freshman Chemistry

Jim Johnson, Asst. to Chairman,
Department of Chemistry,
247 Neiuland, Science Hall,
University of Notre Dame,
Notre Dame, IN;
(219) 239-5659

The Acid/Base Titration program is currently being developed as a prototype for courseware to be used within the Department of Chemistry. Included are a tutorial dialog, a laboratory simulation involving the manipulation of lab equipment, and a concluding drill to summarize important concepts. The dialog will discuss the Bronsted-Lowry Theory, strong and weak acids and bases, concentration terms, and volume measurements and titration curves. The simulation will involve the titration of an acid by a base (or a base by an acid), followed by an immediate interpretation of the resulting titration curve. The drill will be a series of comprehensive questions that must be answered correctly for drill termination. (Lisa Pascal)
Current status: Unknown.

Chemistry

Jim Johnson,
Asst. to Chairman,
Department of Chemistry,
247 Neiuland,
Science Hall,
University of Notre Dame
Notre Dame, IN:
(219) 239-5659

Project: Periodic Table Tool

The Periodic Table Tool will contain a data base of approximately 10 commonly used elemental attributes (such as electronegativity, ionization energy, atomic weight, oxidation state), which can be manipulated by the tool. Any pair of attributes of a selected set of elements will be plotted on an X-Y graph. Elements whose attributes are to be displayed can be chosen from a displayed periodic table by cursor manipulation. (Microsoft BASIC 2.0)
Current status: Unknown.

Project: Multiplan Spreadsheets

EquilCalc provides a tool for solving equilibrium concentrations in the general reaction aA+bB=rR+sS, given initial concentrations and the equilibrium constant. AcidBaseTitr generates a plot (within Multiplan) of pH vs. added base for the titration of a weak acid with a strong base; no approximations as to the magnitude of Ka or [H+] are made in deriving the equation used in AcidBaseTitr. Molmass is a simple molecular weight and percent composition calculator.
Current status: Completed.

Special Projects
Coordinator,
Microcomputing
Program, Drexel
University, 32nd
and Chestnut
Street
Philadelphia, PA

Project: KSIMS

A simulation in chemical kinetics. Time-dependent concentrations of a chemical reaction are computed after initial concentrations of reactants and temperature are specified. Data can be tabulated and plotted in order to deduce the balanced reaction, the rate law for the reaction, and a value for the rate constant. For use in general and physical chemistry.
Current status: Completed.

Computer Science

Project: RASCAL

Rascal (Real-time Pascal) is a new computer language designed specifically for use with the Apple Macintosh. It is a complete development system. A single application contains an editor, compiler, linker, and executor. You can produce programs (compiled to the Macintosh native language-68000 code) and run them, without ever switching applications. Rascal source code is very similar to Pascal, with some elements of C added for good measure. A special program structure allows you to create multitasking objects. With Rascal's tiny supervisor structure, you can run several different programs at the same time; each program can have its own window.

The language provides you with built-in serial-port routines, total access to the Macintosh toolbox routines, and some specially written, built-in graphics routines. Any executable Rascal object code can be turned into a stand-alone application.
Current status: Completed. Contact Richard Crandall or Scott Gillespie at Reed College, (503) 771-1112.

Prof. Richard Crandall,
Reed College,
Portland, OR 97202

Project: Assembler/Editor/Loader

This application was designed to allow efficient progamming of Intel 8051/8031/8751 microcontrollers. Using the Macintosh window environment, this package provides instant visual access to all steps of program development: editing the source code in the Edit window; assembling the source code into hex opcode, which is then visible in the Assembler Listing window; and downloading the object code and using the Monitor window to send commands that execute the code. It is ideal for programming serially networked MCS-51-based devices or for high-speed data collection and appliance control via external lab computers.
Current status: Completed. Consortium price: $150. Retail price: $250.

MacLab, Reed College,
3203 SE Woodstock Boulevard,
Portland, OR 97202;
(503) 771-1112.

Finished products are distributed by
Metaresearch, Inc.;
1100 SE Woodward,
Portland, OR 97202;
(503) 232-1712

Project: Pascal Tutorial

A tutorial-type package for teaching the use of dynamic variables and pointers in Pascal. The user is able to type in commands from a suitable subset of Pascal. These commands are interpreted and the resulting data structure is displayed (and updated) graphically on the screen.
Current status: Probable completion in October 1985.

Special Projects Coordinator,
Microcomputing Program,
Drexel University, 32nd and Chestnut Street
Philadelphia, PA

Project: UNIX-Based C-Development System

SUMacC is the Stanford/UNIX Macintosh C-development environment, a collection of programs that allows you to cross-develop Macintosh applications on your UNIX system and then download them to the Macintosh for execution. Included with the package are Macintosh library/header/lint files, UNIX commands (such as rmaker, macget/put, mac-to-laserprinter), examples, and documentation. Source files are provided. Requires VAX Berkeley UNIX or Eunice. A tape containing the SUMacC files is available for $65 plus shipping. Contact Maria Code for additional details.
Current status: Completed and continuing.

Maria Code,
Data Processing Services,
1371 Sydney Drive,
Sunnyvale, CA 94087;
(408) 735-8006

Computer Science

Asst. Chairman, Undergrad. Education, Stanford University; (415) 497-2300

James Gips, Computer Science, Boston College; (617) 552-3975

For your information only. No contact available.

For your information only. No contact available.

Project: Using Pascal in Introductory Programming

The department has already added a Macintosh section to its CS1 "Using Computers" course.
Current status: Ongoing.

Project: Using the Macintosh in a First Computer Course

The Macintosh has been successfully used as the primary learning tool in a first computer course for about 400 students. Course materials include examples on Multiplan, Microsoft Chart, Microsoft BASIC, Filevision, MacWrite, and MacPaint.
Current status: Completed and continuing.

Project: Portable Standard LISP

PSL for the Macintosh is another in a series of the University of Utah standard LISPS. Currently, it allows up to 45,000 objects on a Macintosh 512K. This will soon be a fully developed commercial product, priced at around $500.

Project: MacGnome

MacGnome is a Macintosh environment for teaching beginning programming. It is based on a structured programming language designed particularly for the course. It guides the novice through program development by presenting options from which the student can choose, showing necessary parameters needed for built-in subroutine calls, detecting errors in syntax, and providing extensive on-line help facilities.

Project: 3D Geometry

Mechanical engineering Professor Douglass Wilde's program allows manipulation of computer-generated pictures as part of instruction in three-dimensional computer-aided design.

Current status: To be completed in winter 1985/86.

Design

Mike Barlow or Karen Lee, IRIS, Cypress Hall, Stanford University, Stanford, CA 94305

Economics

Special Projects
Coordinator,
Microcomputing Program,
Drexel University, 32nd
and Chestnut Street,
Philadelphia, PA

Special Projects
Coordinator,
Microcomputing Program,
Drexel University, 32nd
and Chestnut Street,
Philadelphia, PA

Project: Review Units for Economics I
Covers various aspects of supply and demand analysis. Different problems are generated with each use. Provides response feedback.
Current status: Completed.

Project: Classroom Demos
A set of 30 homework problems for Economics I and II have been developed. They cover topics ranging from profit maximization to international trade.
Current status: Completed.

Project: Problems in Macro and Micro Economics
Topics range from supply and demand to international trade. Requires Multiplan.
Current status: Completed.

Project: Fourier Analysis
Follows the same user-interaction format and screen design philosophy as the Signal Operations module for undergraduate courses in systems engineering. It performs discrete Fourier Transform of signals using the Fast Fourier Transform (FFT) algorithm, and allows a variety of signal operations in both the time and frequency domains. Signal-windowing capability is provided, including a number of commonly used windows as well as user-defined windows. The program is designed as an interactive analyzer to test and reinforce transform concepts with minimal tutorial function.
Current status: First testing: Summer 1985.

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Project: Interactive Analysis Programs
Civil engineering application used to analyze simple, determinate, and indeterminate structures. Students can use this software to conduct parametric study of the effect of relative stiffness, boundary conditions, and geometry on structural response.
Current status: Probable completion in September 1985.

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Project: Mechanical Engineering
This application will provide dynamic system simulation and control system design. Integrates equations of motion and computes eigenvalues and eigenvectors, frequency response, and root locus plots.
Current status: Probable completion in January 1986.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Geotechnical Engineering I
A civil engineering application that provides laboratory reduction programs (consolidation, triaxial shear, and so forth), and related graphics.
Current status: Probable completion in September 1985.

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Project: Geotechnical Engineering II
This project includes geotechnical engineering analysis programs (consolidation settlements, slope stability, pile analysis, and others) and related graphics.
Current status: Probable completion September 1985.

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Project: Mineral Analysis
This Pascal program assists students in identifying the 30 most common minerals found in rocks, soils, and important ore deposits. Procedure involves laboratory determination (by the student) of several basic physical properties, such as luster, cleavage, crystal symmetry, hardness, streak or color, and acid reaction. The properties are then entered into the program and the computer suggests the most likely mineral or minerals that exhibit the properties described.
Current status: Completed.

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Project: Structural Analysis
Dialog programs for structural analysis to help students strengthen their background in basic principles of structural mechanics, including stability, determinacy, and equilibrium. The programs are

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Engineering

Special Projects
Coordinator,
Microcomputing Program,
Drexel University, 32nd
and Chestnut Street,
Philadelphia, PA

Mike Barlow or
Karen Lee, IRIS,
Cypress Hall,
Stanford University,
Stanford, CA 94305

interactive with graphics to display the type of structure, geometry, and loading.
Current status: Probable completion September 1985.

Project: Structural Response to Loading
Interactive programs to determine structural response to loading. For a given structure the student is asked to determine maximum internal forces (shear forces and moments) and maximum deflection for a particular loading. This type of program can be used to conduct parametric studies of the effect of different parameters on structural response.
Current status: Probable completion September 1985.

Project: Simulation Design
Professor Jucker of the Department of Industrial Engineering has designed graphical exercises for analyzing random-number generators. The students practice fitting the generated data with probability distributions and forecasting models.

Project: Chemical Engineering Process Principles
This is a software tutorial to review the elementary process principles in flowing processes, by examples suitable for freshmen. Two such examples are mass balances in flowing separators and heat transfer in two stream heat exchangers. Uses Multiplan.
Current status: Completed.

Project: Sulfuric Acid Manufacture
A software tutorial to review principles in this three-reaction step process (using examples suitable for freshmen). The reaction steps in the contact process are the simple burner for dioxide, the complex multi-staged catalytic bed for tioxide, and the unusual absorber reactors for acid and oleum. Uses Multiplan.
Current status: Completed.

Project: Material Balances
Uses TK! Solver templates and Macintosh Pascal programs for use in teaching material balances.
Current status: Probable completion in Fall, 1985.

Project: Signal Operation
A Signal Operations module for use in introductory systems engineering courses. Intended as a visualization tool for signal and system processing, it offers a variety of signal-generation options ranging from singularity functions, sinusoids, and exponentials to arbitrary functions. It also provides signal editing capability. Signal operations include time and amplitude scaling, time shifts and flips, addition/subtraction, multiplication/division, difference, summation, and convolution. Except for minimal "help" capability, the module has no tutorial function. It is designed as an interactive exerciser which carries out lengthy and routine computations and displays the results in graphical and/or numerical form.
Current status: Completed.

Engineering

Project: Deformation and Fracture of Materials
Professor Miller of Materials Science is developing a program to model deformation and fracturing of materials under a variety of conditions.
Current status: To be completed in Fall 1985.

Project: Materials Engineering
Implementation of TK! Solver for problems in materials engineering, such as rapid crack propagation in plastic pipes, prediction of phase diagrams, determination of purity of materials, polymer flow and processing, and impact behavior of materials.
Current status: Completed.

Project: Statics
Computer-aided learning packages for STATICS. Also, a computer-aided design engineering (CADE) approach which uses a Smart Sketch pad to enable the engineer (student) to use the Macintosh in the same way he would use pencil and paper in a design solution.
Current status: Probable completion in January 1986.

Project: Mechanics
Use of the Macintosh to produce orthographic, isometric, oblique, and section drawings; plots of graphs; and equation analysis of curves. The use of Macintosh Pascal is being explored for producing a piping drawing.
Current status: Unknown.

Project: Systems Analysis
An interactive, menu-driven software package, using MSBasic, for systems analysis. Students will be able to use this as an aid to solving problems wher matrix manipulations are involved. The following routines to be made into interactive packages with illustrative examples are included: 1) finding roots of a set of non-linear equations using the Newton-Raphson method; 2) ordinary differential equation solver along with some graphic routines in order to animate time response of dynamical systems; and 3) finite element techniques.
Current status: Completed.

Project: Thermal-fluid Instructional Software
Thermal-fluid instructional software has been developed (on a VAX 11/750 computer using FORTRAN). This has been done with a view to implement the microcomputer as a useful tool in the instruction of basic heat-transfer and fluid-mechanics courses at the undergraduate level in the Mechanical Engineering and Mechanics department. The programs are interactive and allow students to perform parametric studies of the topics discussed in class.
Current status: Unknown.

Project: Bode Design
The Bode technique for designing a feedback control system essentially involves manipulating Bode magnitude and phase plots until the system specifications are met. A program has been written in Macintosh Pascal which allows the user to interactively change the

exact magnitude plot, viewed on the screen, by changing the poles and zeros of the function being plotted.
Current status: We are in the process of adding the phase plot to the program, going to a compiled version, and improving the user interface.

Project: Introduction to the Thermo-sciences
The Ranking Cycle session is a tutorial written for Engineering 32, Introduction to the Thermosciences by Professor Robert Eustis. It is to be used as the prime instructional medium for the topic, replacing a lecture. The courseware will be one of about a dozen such tutorials. The lesson is made up of two types of screen presentations. In the first type, an instructional frame, the content material is presented with illustrations. The student can scroll text to read the new material. The tutorial also uses interactive frames. In these, the student is given a problem and attempts to solve it by generating graphs and data for different thermodynamic systems.
Current status: Unknown.

Project: Stereographic Projection Methods
Dr. Kosel developed the stereographic projection program for the study of crystalline structure to accompany and illustrate techniques developed in a paper entitled, "Computational techniques for stereographic projection", published in the Journal of Materials Science 19 (1984). The paper describes a number of operations which may be performed on any crystal system including the plotting of any pole or direction on a projection of any orientation and the drawing of the great circle of the plan which is normal to this plane or direction. (Microsoft BASIC.)
Current status: Completed.

Project: Model Builder for Simple Systems
Model Builder is a tool for rapid development of mathematical models of physical systems. The program allows user specification of a variety of parameters to be used in the simulation (independent/dependent variables, additional constants and supplemental equations) which must be representable by a set of differential equations. The generator program creates an appropriate Basic program using data which the user enters through dialog boxes, then executes. Up to three simultaneous graphs of the system's performance can be shown during integration. (Microsoft BASIC 2.0.)

Project: Water Microbiology and Organic Pollutants
Professor Grbic'-Galic' (Department of Civil Engineering) has devised a set of assignments that examine two processes: the growth of micro-organisms and the degradation of organic compounds. The student manipulates relevant parameters and views the result in graph form.
Current status: To be completed in fall 1985.

Project: Rankine & Brayton Cycles
Professor Eustis has designed instructional material and simulations to teach the principles involved in the Rankine and Brayton cycles.

Project: Font Development

All fonts in our project are carefully designed and have been mapped to a "native" keyboard layout.
Current status: The following projects are available now:

- **Pskov 10** (Geneva/Seattle Cyrillic, v2.3, including OCS and South Slavic)
- **Vladimir 12** (Chicago Cyrillic, v1.8 Russian only)
- **Eznik 10** (Geneva/Seattle Armenian)
- **Mesrob 12** (Chicago Armenian)
- **Tech** 9/10/12/18/20/26 (special)
- **Roman/Greek/Econometrics** font, developed by D. Belsley)
- **Lunt** 10/12 (hybrid Pskov on 10, Vladimir on 12, both mapped to a QWERTY keyboard layout by L.G. Jones; useful for secretaries but not supported or compatible with real Pskov/Vladimir documents)

The following projects are forthcoming and are currently being tested:

- **Double-scale versions** of Pskov, Vladimir, Eznik, Mesrob
- **Phonetica** 9/12/18/24 (Geneva-based)
- **LaserWriter fonts** for Cyrillic (Ohrid), Armenian (Koriwn), and phonetics (Sweet)

The following projects are being developed: Georgian, LinearB, Amharic, Coptic, Insular (Old Irish, Old English, Latin), and others.

Distribution:
One copy made free of charge for requesters who provide:

- Self-addressed, stamped return envelope/mailer.
- Covering letter/note with address.
- Two blank, new, best-quality Macintosh disks.
- Two sets of blank disk labels and slipcovers.

We return one disk with fonts and documentation (Microsoft Word). The second disk is our token commission. We will release only finished and tested products, but also welcome exchanges of fonts or ideas with other developers. For "upgrades," consult this publication or Boston College's Macintosh Faculty Development Lab, Gasson Hall 12.

Fonts

Michael J. Connolly,
Slavic and Eastern Languages,
Boston College-
Carney 236
Chestnut Hill, MA
02167; (617) 552-3912

Project: A Font Workshop

The Font Workshop, a disk prepared for the University of Washington, tries to clear up much of the confusion about using the Font Editor, Font Mover, and related tools. Much of the information on the disk was learned by trial and error. This disk tries to centralize the more than dozen technical notes on how to use these utilities. If you would like a free copy, send a disk.
Current status: Completed.

Walter Knapp,
905 NE 114th,
Seattle, WA 98125

Project: Signifier

Signifier is not simply a set of fonts. It comes professionally packaged with a disk and a 12-page manual with a center spread that doubles as a reference card for keyboard placement. The Signifier also features a remapped keyboard that provides additional diacritic keys to support the needs of Greek and Cyrillic. Yet the keyboard mapping was designed so that you can use the standard Macintosh

Norm Meyrowitz or
Bernard Haan, Institute for Research in Information and Scholarship (IRIS),
Box 1946,
Brown University,
Providence, RI 02912

fonts—as well as Greek and Cyrillic—without any changes. The user simply installs the Signifier keyboard once, and then never has to switch keyboard mappings again. The mappings are based on the IBM Selectric key placements, the only "standard" our experts were unable to uncover.

The Signifier allows the creation of combined glyphs (omega with a circumflex and rough breathing mark, for example) in the standard Macintosh way: by hitting an accent ("dead" key (circumflex/rough)) followed by the base letter (omega). Scholars do not have to memorize the placement of the combined letters on the keyboard, but only need to memorize the base letters and the diacritics. Both the Cyrillic and Greek orthographies have been approved by the experts at Brown, Harvard, and Notre Dame. Transliteration fonts have been created to allow any Greek or Cyrillic text to be selected and instantly transformed into the Transliterated Roman equivalent. LaserWriter support for these fonts is planned. It is hoped that schools will adopt these as a standard so that there are not dozens and dozens of font versions around.
Current status: Completed. Cost is $15 to AUC schools.

Completed Fonts
OPHIR FONT
University of Utah, Prof. Tapscott, (801) 581-8814. This is a font for formal logic.
VENICE 28
University of Utah, Tony Jacobs, (801) 581-6499
CHINESE BEIJING 14
University of Utah, Joel McNamara, (801) 581-8663
MATH and GREEK
Princeton.
EXTENDED GREEK
Rice.
MATHEMATICS
Rice.

BAUHAUS	University of Notre Dame.
GENOA	University of Notre Dame.
NEW MATH	University of Notre Dame.
HEBREW 12	University of Notre Dame.
OLD GAELIC	University of Notre Dame.

Current Status: All these fonts are completed and may be available from the technical representative of the particular university.

Sciensoft,
P.O. Box 6311,
Lubbock, TX 79413

Project: Einstein Fontech
This is a general-purpose math and science font that comes in six sizes (9, 10, 12, 18, 20, and 24 point) and is designed to be used with disk-based MacWrite. It has special symbols for operators such as increasing and decreasing limits, and direct sums and products, as well as symbols for typing molecules and chemical reactions. The availability of six font sizes enables the user to type expressions in the exponent and subscript, as well as in limits of integrals and summation signs, using the smaller size fonts for really nice-looking

expressions. Available from Sciensoft, P.O. Box 6311, Lubbock, TX 79413; (806) 794-2833.
Current status: Completed. For a disk with installed font and instructions, please send $18.

Project: Foreign Language Typefaces

Wayne State University has developed the first of a series of Macintosh typefaces for foreign languages that do not use the Roman alphabet, or that use it with special diacritical marks. Fonts have been developed for classical Greek (Colophon); Polish (Warszawa, Krakow, Gdansk); Armenian (Yerevan); Ukrainian (Kyiv); Russian (Moscow following American keyboard and Mockba following the Russian). Among the languages for which typefaces are being developed are Arabic, modern Greek, Hebrew, and Serbo-Croatian. There are two disks available: WSUFONTS1 contains the Colophon and Yerevan fonts, and WSUFONTS2 contains the three Polish fonts, Kyiv, and the two Russian fonts.
Current status: Completed. Distribution of the fonts will be handled by the WSU Computing Services Center for a $5 handling charge to cover the cost of the disk.

Project: Greek fonts

Alternate font development is also taking place on the University of Chicago campus. Perhaps the most complete Greek font package, SMK GreekKeys, is commercially available for $25. This package includes two different fonts in 10 and 20 points, a keyboard driver with 11 dead keys, and a MacTerminal document that displays both Greek and English, and may be used with an on-line Greek data base: the Thesaurus Linguae Grecae. Other scholars at the Oriental Institute, Argonne National Laboratory, and various departments have also created specialized fonts: Gaelic, Cyrillic, Hebrew, Tamil, Devanagari, Vilne, and Armenian.
Current status: Completed.

Fonts

Documentation Library,
Computing Services Center,
Wayne State University,
5925 Woodward,
Detroit, MI 48202;
(313) 577-2144.

William Sterner,
Lead Staff Analyst,
Information Technologies
and New Services,
Computation Center,
University of Chicago,
5737 University Ave.,
Chicago, IL 60637;
(312) 962-7172
STAFF.BILL
@UCHICAGO

History & Politics

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street Philadelphia, PA

Project: Measuring World-Order Values
This project involves the development of a data base for measuring five world-order values: (1) peace, (2) economic well-being, (3) ecological quality, (4) social justice, and (5) political participation. Each value is measured by as many as 50 global indicators. The framework is applied to all 160 states in the international community.
Current status: Expected to be completed in Fall 1985.

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Project: Nonspecialized English Vocabulary
A vocabulary drill based on 300 words of the nonspecialized English vocabulary used in McKay, *et al., A History of Western Society*, Chapters 16-25. Students complete 10 matching exercises aided by "clues" consisting of each word's use in context. The goals of the drill are to enlarge vocabulary, make students more aware of the words they read, and heighten student sensitivity to shades of meaning.
Current status: Completed.

Prof. Carolyn Lougee, Stanford University; (415) 497-2300

Project: Treaty of Versailles
A series of exercises to teach the major territorial and reparation decisions in the Treaty of Versailles. Uses questioning and interactive map exercises.
Current status: Completed.

Project: Historical Simulation
The program, Louis XIV, simulates economic and social life in 17th-century France. Students assume the persona of the head of the Marin family and control lands and investments in the pursuit of wealth and social prominence. The simulation uses the Macintosh computer effectively to emphasize planning and decision making. It is our intention to bring life to some aspects of social life during the reign of the Sun King, Louis XIV. This simulation is designed to be both challenging and historically interesting. Economic decisions and social prestige are both evaluated to determine the outcome of marriage proposals, attempts to hold political office, and purchases of special leases. Nobility must be earned, families planned, and properties managed. In addition, the student must effectively manage a list of social and political contacts, for contacts can determine the success or failure of the Marin family. The simulation is an excellent introduction to the use of the Macintosh computer, because it uses the mouse interface and visual menus to help students through the decision-making process.
Current status: Completed.

Humanities

Project: Tools for Writers
A text-analysis program that enables the user to analyze a MacWrite document (saved as a text file). Will flag all uses of "to be" and occurrences of anomalous or incorrect words and phrases within a customized dictionary. (Program comes with approximately 200 entries in this dictionary. These may be retained, augmented, or replaced.) Also computes the total number of words per sentence and sentences per paragraph, and word frequency (listed either alphabetically or by frequency).
Current status: Completed.

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Philadelphia, PA

Project: PreWrite
A prewriting exercise for the analysis of nonfiction articles and essays.
Current Status: Completed.

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Chestnut Street
Philadelphia, PA

Project: BRS Simulator
Software that simulates the search environment of BRS, a commercial data-base vendor, used to introduce freshmen to data-base concepts and search strategies before going on-line.
Current status: Completed.

Project: Term Papers, Organizing Principles
The Matrix Organizer is a software program that assists students in writing term papers. This software will enable students to write index cards on the screen and to arrange them by "shuffling" and "dealing" the cards into a grid-shaped structure that will serve as the organizing principle of the paper.
Current status: Unknown.

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Microcomputing Program,
Drexel University, 32nd and
Chestnut Street
Philadelphia, PA

Project: Prewriting Program
A prewriting program designed to stimulate ideas about the direction a document should take to achieve its purpose. It is useful when students have chosen a topic but have not yet narrowed their focus. The program helps the student to shape the ideas on the topic with a specific reader in mind. It works by asking a series of questions about audience and purpose, and generates a printout of the responses. It ends with a suggestion that the student start writing. Uses Pascal.
Current status: Completed.

Special Projects Coordinator,
Microcomputing Program,
Drexel University, 32nd and
Chestnut Street
Philadelphia, PA

Project: Macintoshes in the Writing Program
Greg Colomb of the English department has proposed a pilot using Macintoshes in a writing program for first-year humanities core students.
Current status: Under development.

William Sterner,
Lead Staff Analyst,
Information Technologies and
New Services, Computation
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5737 University Ave.,
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@UCHICAGO

Languages

Norm Meyrowitz, IRIS Scholar's Workstation Group Manager, Brown University

Project: Hypertext/Hypermedia

Computer science department Chairman Andries van Dam acts as a consultant to the project, and Nicole Yankelovich, IRIS project coordinator, is the primary liaison with the Brown faculty.

The Institute for Research in Information and Scholarship has undertaken a long-term research project to design and develop a hypertext-hypermedia system. The research is being conducted within the context of Brown's Scholar's Workstation Project—a decade-long effort directed at creating a campuswide network of high-powered, graphics-based workstations for use in research and teaching in the sciences and liberal arts.

Hypertext is both an author's tool and a reader's medium. With hypertext, authors or groups of authors will be able to link information together, annotate existing texts, and create footnotes that allow readers to see either bibliographic data or the body of the referenced text. Readers will be able to browse through linked, cross-referenced, annotated, footnoted texts in an orderly, but nonsequential manner: an automated encyclopedia of sorts. To learn about Greece from an encyclopedia, for example, students must look up the topic and then retrieve volume after volume to find the host of other articles related to Greece (Acropolis, Plato, Crete, and the like). With a hypertext system, however, students could easily browse through the suggested articles by touching the words.

Using hypertext on a network of computer workstations, students could electronically "hand in" written assignments that include "links" to reference material. The professor (and other students, if permitted), could read the document, examine the reference material, and add personal annotation links—such as comments, criticisms, and suggestions, for revision—to the student's document. These annotations might introduce links to different reference material, perhaps to emphasize a counterargument to a point the student has made. While revising the document, the student could see all the professor's comments and examine the sources containing counterarguments.

Hypermedia is an extension of hypertext that includes such components as pictures, video, voice, and animated computer graphics. With a hypermedia system, an author will be able to create links to complex diagrams, texts, photographs, video documentaries, symphonies, and the like. For example, a music instructor teaching a course on Bach might prepare a hypermedia corpus for the class that could include a biography of the composer's life with links to the score of each musical work mentioned, a documentary film about Bach's life, and other scholarly texts about his work. In turn, each score might include a link to one or more recordings of the piece.

Over the next three years, researchers at IRIS hope to complete a hypertext/hypermedia system that will run on a stand-alone advanced workstation. Once a working prototype is developed, they will extend the system to function over a network, making joint authorship, file transfer, and remote storage of large data bases feasible. In addition to the uses described above, the

hypertext/hypermedia system is being designed to provide a framework for educational software development. With funds from the Annenberg/CPB Project, IRIS plans to test this framework in three experimental courses over the next three years.
Current status: A long term, ongoing project. An initial hypertext/hypermedia prototype allows users to create links to interactive videodisc frames as well as text.

Project: GriffinText

Metaresearch, Inc.,
1100 SE Woodward,
Portland, OR 97202;
(503) 232-1712

GriffinText was developed at the Reed College MacLab. It is a fast, no-frills text processor designed specifically for academic users. Because of its simplicity and dedication to straight ASCII text, GriffinText can display, process, and print very quickly, and can easily handle large text files (up to 32K). In addition, to eliminate the problems associated with breaking a large document into several files, GriffinText has a "chainprinting" procedure that allows you to merge files into one document with continuous page numbers and with no blank spaces between files. The idea behind GriffinText is to make the process of creating and revising text as efficient as possible, while embellishments are reserved for short documents and final versions.
Current status: Completed and available. Consortium price: $39. Retail price: $69.

Project: Drill, an English-Language Drill Program

The Personal
Computing Center,
1 McNutt Hall,
Dartmouth College,
Hanover, NH 03755;
(603) 646-3249

Drill can be used in almost any course where text-and/or picture-based drilling is useful. Subjects in many different academic disciplines may be addressed using English or other Western European languages such as French, Spanish, or German. The instructor writes drill script in MacWrite, and draws the pictures in MacPaint. Examples of the latter might be grammar tutorials, dictionaries, or thesauri. S/he then gives those files to the student, with a copy of Drill. When Drill is run and the student selects a new drill, he or she is given instructions and questions in a window of text, and types in answers there. At any time the student may bring out any of the aid windows, and scroll through those and the drill window to find what's needed. The student may also end a drill session, or move to the next section within the drill.

The disk includes Drill, (the program), Create a Drill (a script about writing drills), documentation, and sample drills.

Project: A Language Teaching Program

The Personal
Computing Center,
1 McNutt Hall,
Dartmouth College,
Hanover, NH 03755;
(603) 646-3249

This program, an extension of the Drill program, adds these capabilities:

- Foreign language, using Macintosh fonts: Greek, Spanish, and German initially, others later. This would extend over all of the features of the current Drill program.
- Graphical instruction by presenting pictures and allowing the student to study the language by:
  - Naming (in the foreign language) items in the picture.
  - Pointing to items at the prompting of the Macintosh.
  - Pointing and naming items themselves.

Languages

In all study modes, the Macintosh checks for the correctness of the answer, using appropriate language-dependent methods. In German, for instance, capitalization matters, and diacritical marks and word order may be important.
Current status: This application has been used in fall and spring courses.

Project: Statistical Analysis of Text Files

A set of programs for statistical analysis of text files, including Reals-Frequency Distribution (Zipf's Law), stem and suffix counts, and a match to word list (for stopword counts, and stylistic analysis).
Current status: First versions completed.

Mike Barlow or Karen Lee,
Stanford University,
Stanford, CA 94305

Project: Russian Vocabulary

Prof. Van Campen has developed some drills in Russian vocabulary and morphology.
Current status: In progress.

Katy McKinin,
University of Notre Dame
(219) 239-5600
BITNET:
C3LRRP@IRISMVS

Project: Russofile

A simple Cyrillic editor with pull-down menus of Russian-language grammatical reference materials.
Current status: Probable completion July 1985.

Katy McKinin,
University of Notre Dame
(219) 239-5600
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C3LRRP@IRISMVS

Project: The Glossarizer

The Glossarizer was designed as a tool for foreign-language teaching. It particularly simplifies the process of creating side-by-side glossed texts where the source language requires a special character set. The application consists of a simple editor for entering text and a "glossary mode" for attaching notes, translations, or other explanatory information to a word or phrase in the original. Once a glossary file has been created, double-clicking or selecting items in the original text will bring up a window displaying the corresponding note (if one exists). Printing options allow display of the original text, or side-by-side text and notes. In the side-by-side option, items with a glossary item are printed in bold both within the text and in the note. Explanatory information is displayed in a smaller font than the original.
Current status: The Glossarizer is now working. Modifications and enhancements are in progress.

Management

Project: Key Financial Models
This project involves the programming of several key financial models, including a refunding model, lease vs. buy analysis, and a valuation model.
Current status: Probable completion in December 1985.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street Philadelphia, PA

Project: Assisted Linear Programming System
A linear program package for student use. This will be the first component of an eventual toolkit of analytical techniques. Two aspects of the programming package are used as a problem solver in coursework and as a tutorial for teaching introductory linear programming.
Current status: Probable completion in January 1986.

Project: Business Law Case Studies
This application includes summaries of selected cases in business law, each followed by a legal question based on that case. The program branches, based on the user's response, to a menu of up to 10 possible reasons for selecting that response. A specific message is provided for each reason selected. An editing feature allows the user to edit existing cases or add new ones via MacWrite. Editing feature transfers MacWrite documents in the same way as Drexel's MatchMaker authoring tool.
Current status: Unknown.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street Philadelphia, PA

Project: Spreadsheet Optimization
Linus Schrage of the Graduate School of Business is working on a Macintosh version of VINO (Visual INteractrive Optimizer) that will augment spreadsheet "What if?" analysis with a "What's best" facility. Schrage is working in Absoft's FORTRAN.
Current status: Unknown.

William Sterner, Lead Staff Analyst, Information Technologies and New Services, Computation Center, University of Chicago, 5737 University Ave., Chicago, IL 60637; (312) 962-7172 STAFF.BILL @UCHICAGO

Project: Security Price Research (UNIX)
The Center for Research in Security Prices (CRISP) is planning to use Macintoshes as intelligent workstations for a UNIX system.

Project: Managerial Economics
Basic statistics programs for use in managerial economics are available. We currently provide undergraduate students in these classes with a set of small statistical programs that run on the Macintosh under Microsoft BASIC 2.0. The programs are selected from a menu by mouse control and users enter data through the keyboard or in DATA statements. These programs now include simple regression, multiple regression, nonlinear regression, decomposition analysis, smoothing, and Monte Carlo simulation.
Current status: Completed.

Prof. Barry Keating, College of Business Administration, 135 Hayes Healy Center, University of Notre Dame, Notre Dame, IN; (219) 239-5057 BITNET: FL6BCP@IRISHMVS

Math & Statistics

Paul F. Velleman,
358 Ives Hall,
Cornell University,
Ithaca, NY 14853

Project: The Data Desk

Developers: Paul F. Velleman and Jerry M. Lefkowitz

The Data Desk is a full-function statistics package for the Macintosh. It has been designed from the ground up to take advantage of the graphics, mouse, user interface, and SANE numerics found on the Macintosh. All data entry and editing uses TextEdit conventions. All calculations take full advantage of SANE (and algorithms have been chosen accordingly). Many of the graphics are interactive.

We have tried to design a better environment for the entry, editing, manipulation, analysis, and display of data than is available in traditional statistics packages. Our initial goal is a package that runs on the Macintosh 128K and is suitable for use in a two-semester introductory statistics sequence for undergraduates. Future work will extend the package to support research statistics on Macintoshes with more available memory. The Data Desk provides a rich environment to which other, more specialized or sophisticated analysis modules can be added easily. Several such modules are being planned.

Current status: Prototype versions of the program and documentation were used during spring by 100 sophomores in a second-semester statistics course. A student version should be available for fall adoption, with a professional version soon to follow. Bulk purchases and site licensing can be arranged.

David Ellerman,
Computer Sciences,
Boston College,
Chestnut Hill, MA
02167;
(617) 552-3975

Project: Multiple Regression Template

This Macintosh Multiplan template performs least-squares multiple regression. It is currently configured for data sets with three or fewer independent variables. The number of data points in the data set can be easily expanded, but it is usually 25. Once the data has been entered, the calculations are initiated via the Calculate Now command. When the calculation stops, the multiple regression results can be obtained from the rest of the spreadsheet. The variance-covariance matrix is given. The ANOVA table is displayed, along with the overall F statistic, R-squared, and the adjusted R-squared statistic. Also included are the multiple regression beta coefficients, their standard errors, and their statistics.

Current status: Completed.

David A. Belsley,
Department of Economics,
Boston College-Carney
129,
Chestnut Hill, MA 02167

Project: Regression-Sampling Program

Reg Sampler is a regression-sampling program that allows graphic depiction of the variation in regression-coefficient estimates that can occur in repeated samples for a given set of explanatory "X" data, or independent variables. The user is able to see the variability in estimated regression parameters that can indeed occur, the meaning of the notion that the Ordinary Least Squares (OLS) estimator is unbiased, and the interrelation of the estimates of the different coefficients. Beyond the direct value of such a demonstration, the user is given new insights into—and appreciation for—the operation of regression, the meaning of regression estimates, and the meaning of tests of significance.

Current status: Completed.

Math & Statistics Σx_i

Project: Conformal Mapping Program
Developed by: Rice Macintosh Software
Concept: Sam Davis, Chemical Engineering
Complex variables make up one of the most visual areas of mathematics. A graphically oriented program displays the effects of mappings of the complex plane on contours. The program computes complex-value functions and allows student specification of the contours and the mappings.
Current status: Completed.

Andrea Martin, ICSA - Rice University, Houston, TX 77251; (713) 527-4965

Project: Plotting Derivatives of a Calculus Function
Developed by: Rice Macintosh Software
Concept: Paul Pfeiffer, Mathematical Sciences
This program allows you to define a function with up to seven coefficients, plot the function, and calculate its derivative.
Current status: Completed.

Andrea Martin, ICSA - Rice University, Houston, TX 77251; (713) 527-4965

Project: Linear Programming Template
This application is a Multiplan template using the simplex method to obtain a solution to linear programming problems. It can solve linear programs with five or fewer original variables (not counting slack, surplus, or artificial variables) and five or fewer structural constraints (not counting the usual nonnegativity constraints on the variables). The right-hand side (RHS) of the constraints must be entered as nonnegative, but the constraint relations can be any of three types (<=, =, >=). The objective function can be maximized or minimized.
Current status: Completed

David Ellerman, Computer Sciences, Boston College, Chestnut Hill, MA 02167; (617) 552-3975

Project: Binary Trees
This program allows construction of binary trees on the Macintosh, with various traversing and construction algorithms. Students are able to see explicitly not only the results of adding items to the tree, but also the process. They can ask for a traversal of the tree, and watch it happen in whatever way they specify. The program is used for teaching algorithms in introductory computer science courses.
Current status: Completed. Has been used in computer science courses.

The Personal Computing Center, 1 McNutt Hall, Dartmouth College, Hanover, NH 03755; (603) 646-3249

Project: Calculus Demos
Designed for lecture/classroom demonstrations of related rates, area under a curve, volumes of solids of revolution, rotation of axes, parametric equations, and polar coordinates.
Current status: Probably completion January 1986.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Matrix Algebra
A program that uses rational arithmetic for solving the following problems: transforming a matrix (up to 6 x 12) to reduced row echelon form, solving a linear system (up to 6 equations in 11 unknowns), multiplying two matrices (each up to 6 x 12), and finding the inverse of a matrix (up to 6 x 6). Has tutorial and automatic modes of operation.
Current status: Completed

Math & Statistics

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Department of
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321 Computing Center
and Math Bldg.,
University of Notre Dame,
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(219) 239-7694
BITNET:
FRDN5W@IRISH MVS

Dr. Dennis M. Snow
Department of
Mathematics,
203 Computing Center and
Math Bldg.,
University of Notre Dame,
Notre Dame, IN;
(219) 239-6227

Project: XY Plotter Drivers

Dr. Grant has developed drivers for the Roland DXY-800 and the HP7470A plotters. The drivers are available now in the form of Consulair C programs and ".h" include files (and assembly source to those interested). The application allows users to move easily between the two serial ports.

For example, a Calcomplike call PLOT(x,y,pen) replaces basic drawing routines in QuickDraw and the two pen plotters.
Current status: A finished, stand-alone version of the application should be available by midsummer. By that time, these routines should be available to Absoft FORTRAN and Macintosh Pascal calls.

Project: Math Programs

Dr. Snow has created a number of short programs in Microsoft BASIC to do the following:

- Function Graph graphs functions in boxes drawn by the mouse. Allows for graphing several functions in the same box.

- SurfaceGraph graphs transparent surfaces. Axes are positioned by the mouse to allow variations in scaling and perspective.

- SurfaceGraph II graphs opaque surfaces.

- dim V(μ) calculates the dimension of an irreducible representation of the classical simple Lie groups with highest weight.

- Weights calculates the weights of an irreducible representation of any simple Lie group from the highest weight.

- Row/Col Reduce diagonalizes a matrix over Z, using elementary row and column operations. Useful for calculating the cokernel of a map Zn ---> Zn.

Project: Electrocardiogram Interpretation

EkTeach uses animated graphics and interactive responses via the mouse to teach interpretation of the electrocardiogram and to test the student with respect to the names of the EKG deflections, the amplitudes, and the time relationships of the normal EKG tracing.
Current status: Completed.

Project: Neurobiology: Wave Forms and Filters

This program produces a high/low pass filter that is fully controlled by the Macintosh mouse. The filter is a first-order, infinite-impulse response design, digitized by an amplitude-adjusted, impulse-invariant transform. It acts like a simple RC filter. The application is written in MacFORTH. In the input window, one can select sine, step, or impulse waveforms or, by clicking in the content region, freeform input. The filtered waveform appears in the output window. The cutoff frequency of the filter is chosen in the ouput window, and the high/low selection is done by menu. The unit of frequency is cycles per window.
Current status: Completed.

Project: Analysis of Photomicrographs of Brain Cell Aggregates

In the pharmacology and physiology department, Stephen Sellers has written a program for the image analysis of photomicrographs of brain cell aggregates. Done in Microsoft BASIC, the program aids in the calculation of aggregate area, cell counts, tissue volumes, statistical analysis, and report writing. The application utilizes the mouse to trace a 35mm slide image projected onto the Macintosh screen to replace time-consuming manual procedures. Thus, for a factor of 10 less than the cost of a digitizing system, researchers have been able to greatly improve their experimental precision and reduce the time period for data collection by a factor of 7.
Current status: Unknown.

Medical

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Medicad

Mike Barlow or Karen Lee,
IRIS, Cypress Hall,
Stanford University,
Stanford, CA 94305

Project: Physiology

Models of the dynamics of physiological systems, produced by Professor Heller of the biology department.
Current status: To be completed in winter 1985/86.

Project: Respirator Simulation

The program, designed by Professor Kohatsu, allows the student to simulate the effects of different responses to data from a patient on an artificial respirator.
Current status: To be completed in winter 1985/86.

Mike Barlow or Karen Lee,
IRIS, Cypress Hall,
Stanford University,
Stanford, CA 94305

Project: Electrolyte Disturbances and Treatment

In Professor Maffly's program, students use help screens and the Calculator to answer questions concerning electrolytes.
Current status: Completed.

Ron Worthington, Ph.D.,
Texas Tech Health
Science Center,
Dept. of Cell Biology
& Anatomy,
Lubbock, TX 79430-
0001;
(806) 743-2707

Project: Understanding Flow Cytometry

The software will be developed in four segments: (1) utilities for interfacing with flow cytometers via serial ports and receiving and sending data files, (2) graphic display and data-manipulation routines, including an emulator of real-time data acquisition by flow cytometer instruments, (3) statistical and data-reduction programs, whose output will be objects for the graphics modules, and (4) concepts and models of cell cycle and cell differentiation, allowing "What if?" sorts of speculation in an environment of manipulable graphic objects derived from flow cytometric data. Written in Lisa Pascal, Modula-2, and C.
Current status: Completion expected in summer 1986.

Ron Worthington, Ph.D.,
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Dept. of Cell Biology
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(806) 743-2707

Project: Cell Biology Lab Uses

This project will bring simplicity and consistency to the manipulation of data from complex experiments in an experimental hematology lab. The software will facilitate data handling for entry-level students and personnel, and will assist scientists in the interpretation of results.
Current status: Completion expected in November 1985.

Project: Drexel Disk

The Drexel Disk uses an interactive map of the Drexel University campus to orient new Macintosh users to the microcomputer-related facilities available. Also gives tips on file handling, making backups, using MacWrite for term paper production, and so forth. An interesting blend of text and graphics.
Current status: Completed.

Special Projects Coordinator,
Microcomputing Program,
Drexel University, 32nd
and Chestnut Street,
Philadelphia, PA

Project: BenchTop Products for the Sciences

The BenchTop product line was developed at Reed College. It was designed to solve a traditional problem facing science teachers and their students: budgetary constraints in regard to laboratory apparatus.

The Macintosh can display iconic instrumentation, that is, cartoons of apparatus. Such iconic apparatus are equivalent to traditional apparatus, provided the data displayed is real, and the panel operations are precise.

The chief software products are The BenchTop, which creates a powerful laboratory network system, and Rascal (see description under "Computer Science"), a real-time Pascal. These applications allow the user to define and operate instruments. The hardware products are a Universal Microcontroller, a laboratory single-board computer based on Intel microprocessors; and the BenchTop Instrument, a customizable, shielded instrument box. Both hardware devices talk to the Macintosh according to a rigorous protocol.
Current status: Universal Microcontroller completed. Consortium price: $500. Retail price: $750.

Metaresearch, Inc.,
1100 SE Woodward,
Portland, OR 09702;
(503) 232-1712

Project: Lesson Writer

This is an authoring tool that enables the user to create short lessons using basic MacWrite procedures and any graphics that can be transferred via the standard Clipboard. Each item may contain up to eight lines of text and/or one graphic. Permits up to 30 expected responses with a specific message for each response. Response may be either typed-in text or object selection. Author specifies recognition/nonrecognition of both case and spacing and acceptance of partial strings or exact match. Branching, scoring, and two-level hints are also available for each item.
Current status: Completed.

Special Projects Coordinator,
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Philadelphia, PA

Project: MacPress

Researchers at Brown (IRIS) are presently testing a program that allows documents created with MacWrite to be printed on the Xerox 9700 Laser Printer.

The idea for the development of the MacPress program grew out of the Lisa Project, as IRIS needs-analysts and a faculty committee identified several crucial areas for research and development. One of these projects involved developing an interface from a microcomputer to a high-quality printer. IRIS staff considered a number of options, including an interface between the Apple Lisa and the 9700.

Norm Meyrowitz,
Scholar's Workstation
Group Manager,
Brown University

Several intervening factors, however, caused IRIS to decide in favor of a Macintosh-9700 link. Apple's shift in development emphasis away from the Lisa and toward the Macintosh meant that few or no very useful new applications were expected to be released for the Lisa. Meanwhile, the Macintosh, the Lisa's portable and more affordable kin, was enjoying a tremendous popularity at Brown. The affordability of Macintosh, along with its high-quality graphics and black-and-white bit-mapped display, meant that the Macintosh could be considered a viable entry-level microcomputer for students. A Macintosh-9700 link would thus provide students with the high-quality printing they would otherwise be unable to afford.

IRIS systems researcher Tom Padula coordinated a team of developers from IRIS, the computer science department, and the Computer Center that put together the intricate structure and wrote the complex programs needed to create the link. The user, however, need never know how to operate anything other than a Macintosh, because the interface works just like all Macintosh programs. Using the mouse, the user simply selects the desired printer and logs on to the Computer Center's IBM 3081 mainframe. MacPress accepts the information and stores it as a default for future use. Moving to the File menu, the user selects Print and then the appropriate file ("Resume") from the displayed list of documents contained on the disk.

From there, a complex series of translation and transfer programs takes over, but this process is transparent to users; all they are required to do is walk over to the Computer Center and pick up the printout. IRIS will release the program to the Brown community during the spring semester. The program now works from T-Boxes and modems, and performs a number of complex formatting functions.

As part of the campuswide Scholar's Workstation Project, MacPress will aid in the migration of computer use away from mainframe/terminal services and toward distributed networks of graphics-based workstations. MacPress can be modified easily to accomodate other printers, eventually even lower-throughput laser printers housed in dormitories or other convenient campus locations.
Current status: Completed.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: MatchMaker

This application is an authoring tool that enables the user to create matching exercises for drill and practice or testing. The user develops text in MacWrite, and then, using this utility, creates a matching-type stand-along application for student use. The student indicates an answer by moving the selected word or phrase onto the line beside the question it matches. There are 10 items per unit, grouped in three-unit segments. A two-line help message can be included for each item. Any character that can be typed in MacWrite and then saved as text can be included in the application.
Current status: Probable completion in summer 1985.

Project: Academic Transcripts/Field Surveys

The National Opinion Research Center (NORC) has completed—and is developing another—Computer-Assisted Data Entry (CADE) program for use in entering academic transcripts and field surveys. The transcript project is part of NORC's National Longitudinal and High School and Beyond Survey sponsored by the National Center for Education Statistics. These programs were written in the Lisa cross-development environment by William Mudge, to increase data integrity and lower acquisition time. The transcript program runs on the Macintosh 128K and utilizes only keyboard commands in order to optimize coding speed.

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Project: Faculty Developer's Agreement

The University of Chicago Computation Center released a standard "Developer's Agreement" for faculty, staff, and students early in 1985. This agreement provides the official framework for technical and administrative support of Macintosh software development on campus for the nominal
fee of $150 per year. Developers have access to our technical liaison, a developer's user group, reference library, user and developer bulletin boards, and on-campus previews of Macintosh High School. The Computation Center makes no ownership or copyright claims to developed software, yet individuals may be affected by the specific terms of their relationship to the university.

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People interested in additional information should contact one of the university's Apple contacts at Computation Center, University of Chicago, 5737 University Ave., Chicago, IL 60637; (312) 962-7151, or via Bit Net: @UCHICAGO.

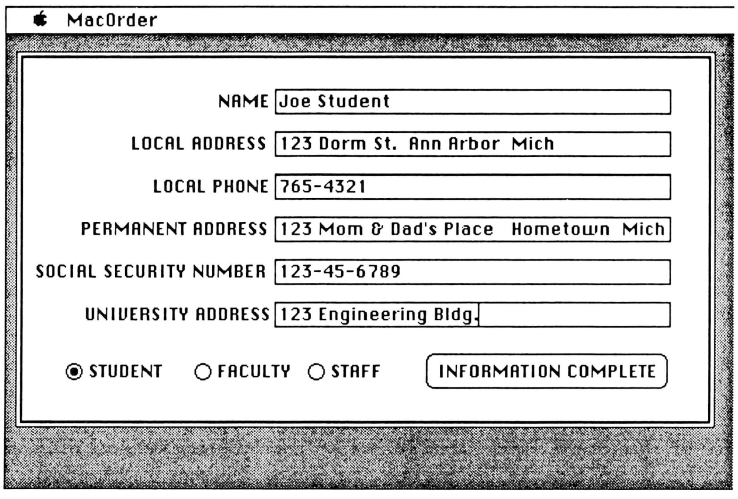
Project: Order Processing Program

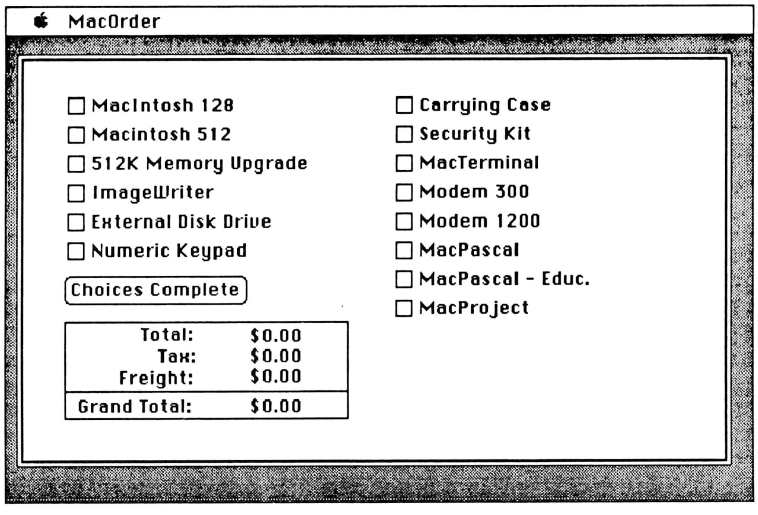
MacOrder is a program used by the University of Michigan to process Consortium computer orders; it is written in Microsoft BASIC. MacOrder takes information such as name, address, university title, and local phone number, and prints it onto the university's configuration form along with stock numbers, item and total costs, and sales tax for the items ordered. Data is saved in a disk file; subsequently, sales per item can be totaled and listed using a related program called MacOrder-Report. Each program can be easily modified to include more or fewer items, and to print on to other forms.
Current status: Completed.

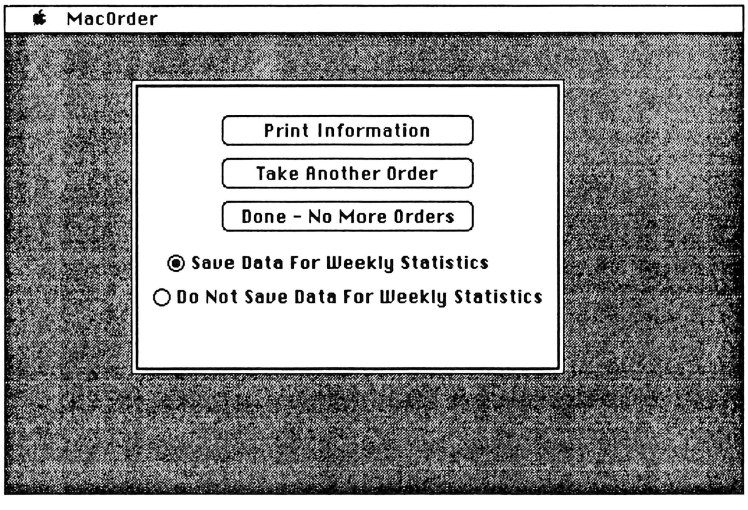
Bill Wrobleski,
Microcomputer
Education Center,
University of Michigan,
Ann Arbor, MI 48109;
(313) 764-5356

(See sample screens on the following page.)

MacOrder
sample screens







Project: A Skeleton Macintosh Application

Skel is used for teaching Macintosh development. It is a skeleton demo Macintosh program written in Lisa Pascal. Its purpose is to illustrate in a clear fashion, isolated from any particular application, the basic code for handling a simple Macintosh user interface.

It strives to be correct as far as it goes, without shortcuts that would lead to trouble in larger applications.

To use Skel, study the source code. Modify it to test your knowledge. Steal working pieces of code for your own programs. Beat on it. Subject it to cruel and unusual punishment. Pay heed to its warnings. More sturdy instructions are given in its source code.

The distribution disk includes Skel (the program), Bone (an empty file), Skel.TEXT (the Lisa Pascal source code), SkelR.TEXT (the Resource Definition file), SkelX.TEXT (an EXEC file to re-create it, using the Lisa Pascal Workshop 2.0 or 3.0). Developed by Steve Maker.
Current status: Completed. Send $4 for the disk.

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Project: Atlas

Atlas can be used in any field to teach by means of a pictorial atlas on the Macintosh. The instructor (or student) creates a set of images (with MacPaint, a video digitizer, or other graphics program) on the desired subject (for instance European history, or frog anatomy), and gives the resulting data set to the students on a Macintosh disk with the Atlas program. When Atlas is run, it allows students to view the images on the Macintosh; specify a set of overlays to view (for example rivers, towns, roads, or the nervous system, circulatory, or skeletal system); and zoom in and out to levels of greater or lesser detail, with the overlay set remaining intact. Version 0.2 is a preliminary version. Developed by Carl Spitzer from a concept by Leo Spitzer and David Lagomarsino of the history department.
Current status: Available now. Send $4 for the disk.

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Project: The TheaterGame

This is an interactive program that allows "blocking" of a play using student-designed stages and characters. The program, devised by English Professor Larry Friedlander, records the movements of characters both in terms of orientation and of position on the stage. The result is an animation of a scene that is synchronized with a recording of the spoken text.
Current status: To be completed in winter 1985/1986.

Mike Barlow or Karen Lee,
IRIS, Cypress Hall,
Stanford University,
Stanford, CA 94305

Project: Bibliomania

A game to introduce students to the concepts of library use. To move to the next level in any category, the student must attain the status of "bibliomaniac."
Current status: Unknown.

Mike Barlow or Karen Lee,
IRIS, Cypress Hall,
Stanford University,
Stanford, CA 94305

Miscellaneous

Mike Barlow or Karen Lee,
IRIS, Cypress Hall,
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Dr. T.D. Kimura,
Washington University,
Dept. of Computer
Science,
Bryan Hall 509,
Campus Box 1045,
St. Louis, MO 63130;
(314) 889-6122

Project: Film Design
Communication students in Professor Samuelson's class learn storyboarding by the manipulation of MacVision images using ThinkTank 512.
Current status: To be completed by fall 1985.

Project: Mac-Prime-Mac
This application is a protocol that allows you to transfer text or binary files from a Macintosh to a Prime Computer and back to a Macintosh, thereby allowing the Prime Computer to function as a file server.
Current status: Completed.

Project: User Interface Demo
This application was designed to introduce potential developers to the Apple terminology associated with the Macintosh and to promote the understanding of the various options avaialble within the Macintosh user interface.
Current status: Completed.

Project: The Show and Tell Language
The Show and Tell Language is a new icon-driven programmning language designed for schoolchildren that integrates the computer's capability to manage computation, communication, and data bases in the home and classroom environments. As an information system of the future, the Show and Tell Language provides the capability to manipulate video, audio, and traditional data such as text and numbers. The control mechanisms for different media are uniform and integrated.

Two concepts are the backbone of the Show and Tell Language: data flow and completion (filling in the missing portions of an incomplete pattern). By combining the syntax of data flow with the concept of filling in the blanks, an easy-to-use system results. Despite its ease of use, it is a very powerful language. In fact, it has been proven that any computable functions and any data query on a relational data base can be represented by the language.

A Show and Tell program consists of boxes connected by arrows. The boxes contain icons representing system or user-defined primitives. Special kinds of boxes and additional syntactic rules provide powerful mechanisms such as sequential and parallel iteration, subroutines, and recursion.

The Show and Tell Language is implemented on the Apple Macintosh personal computer. A prototype version is currently out. Note: This project is funded by the Computer Services Corporation (CSK) of Japan.
Current status: A final version is being implemented and the first releasable version will be available in September 1985.

Project: Mozart

Mozart is used in introductory music composition courses. It is intended to give the music student with no formal experience in composition the opportunity to experiment with musical arrangement, tempo, articulation, and dynamics. It allows the user to compose a minuet from any of six pre-defined two-measure phrases, written by Mozart. The minuet may be up to eight phrases long. The user controls the arrangement of the phrases, as well as the tempo, articulation, and dynamics, by dragging items from any of four palettes onto a staff. The minuet may be played on the Macintosh's built-in speaker or saved to disk to be retrieved later. The staff may be printed on an ImageWriter. Version 2.0 has all the help present in the application file and a startup screen.
Current status: Available now. The disk comes with AppleTones on it (see next entry). Send $4 for the disk (containing the two applications).

Music

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Project: AppleTones

AppleTones is a music-building program on the Macintosh. It is a tool that teaches the importance of four things in the composition and arrangement of music: repetition, silence, changes in volume, and timbre. Twelve predefined sounds can be arranged and their duration, timbre, and volume can be changed. The user composes a piece by dragging any of the available sounds from a palette onto a staff. The vertical position of the sound determines its timbre, the width of the sound determines its duration, and its height determines its volume.
Current status: Comes on disk with Mozart.

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Project: Musical Slide Show

With no need to become programmers, users will be able to write music on the screen (notation that can be printed out), to hear the score played through the Macintosh's speaker (or an external system), to add text and graphics as required, and to edit the results to form a "slide." A series of these slides can be used to create programmed lessons for various music courses.
Current status: Probable completion in September 1985.

Special Projects Coordinator,
Microcomputing Program, Drexel University, 32nd and Chestnut Street,
Philadelphia, PA

Project: Baroque Guitar Data Base

The Baroque Guitar Data Base utilizes 1st BASE by DeskTop Software Corporation. To date, over 2,000 separate melodies have been entered into the system, with each entry including author, title, source, page, meter, time signature, key, length, melody (in the original key), melody (transposed to the key of C), type of piece (allemande, courante, prelude, and so forth), correspondences in other sources, and additional notes of interest. The data base presently emphasizes baroque guitar sources after 1670. The system can easily sort and sift through the data to compile lists or search out correspondences. Furthermore, the Baroque Guitar Data Base can serve as a thematic index for baroque guitar sources. Since the baroque guitar melodies have been transcribed from tablature notation into regular pitch names (both in the original key and transposed to a universal "key of C") nonguitarists can instantaneously search out melodies in baroque guitar sources without having to transcribe pages

Craig H. Russell,
Department of Music,
California Polytechnic State University,
San Luis Obispo, CA 93407

Music

Mike Barlow or Karen Lee,
IRIS, Cypress Hall,
Stanford University,
Stanford, CA 94305

of tablature notation.
Current status: By August 1985, it is expected that there will be over 4,000 melodies in the data base.

Project: Simulation of 18th-Century Organ

A simulation of an 18th-century organ in order to illustrate the musical articulation and phrasing of the time. The program, devised by Professor Houle of the music department, will produce sound and musical notation.
Current status: To be completed in fall 1985.

Networks

Jim Perry,
Kiewit
Computation Center,
Dartmouth College;
(603) 646-2643

Project: AppleBus Network

Darterminal provides network services to Macintoshes on an AppleBus network (internet). Darterminal runs protocols specific to Dartmouth's Kiewit network and will not run elsewhere without substantial work. It provides:

- Multiple virtual terminal connections to host computers.
- Transfer of arbitrary Macintosh files to and from host.
- Tektronix 4012 graphics emulation.
- Network alerts to users.

Current status: Completed (improvements continuing).

Maria Code,
Data Processing
Services,
1371 Sydney Drive,
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(408) 735-8006

Project: SEAGATE

SEAGATE is a network "gateway" between ETHERNET and AppleTalk. It allows UNIX to provide servers for Macintosh AppleTalk applications. Complete instructions and software for building your own SEAGATE are provided. Also included is the software for an "external file system"; this lets the Macintosh use UNIX as a transparent network file server.

Current status: Completed.

Nutrition & Food Science

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: MacDiet

This nutrient analysis system (on two disks) uses Multiplan's linked-files option. It includes nutrient data on approximately 1,200 foods. Nutrient totals will be compared to the Recommended Dietary Allowance (RDA). Energy balance can be calculated based on Basal Energy Expenditure (BEE), formulas, and actual activities. Bar graphs are available for comparison of RDA nutrients and percentages of carbohydrate, protein, and fat, as well as ideal body weight, and caloric consumption vs. expenditure.
Current status: Completed.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Diet Planner

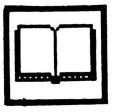
This is an interactive program for people with kidney disease. It aids in the planning and evaluation of proper diet by predicting the metabolic consequences of food choices so that these choices can be compared with nutritional goals set by the physician or dietician. It handles up to six meals in the daily plan. Information about 700 foods in 14 categories is stored in the nutritional data base. The data base may be edited by the user to suit a particular ethnic or regional diet preference.
Current status: Completed.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Newdiet and Prodiet

These are Multiplan programs designed to solve nutritional composition problems involving linearly additive dietary elements as well as computation of the chemical score, an index of relative protein quality.
Current status: Completed.

Philosophy



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Project: Venn, a Philosophy Tutor
This program allows the student to solve syllogisms by using Venn diagrams. It offers:

- Practice with Venn diagrams on single logical sentences.
- Single-sentence inferences.
- Full syllogisms (two premises and an inference).

Venn randomly makes up syllogisms and shows them; the student represents the premises with a Venn diagram, using MacPaintlike filling of regions with patterns. The program checks the diagram, and the student indicates whether s/he believes the syllogism to be valid or invalid. The program tells the student whether s/he is correct or not.
Current status: Available now. Comes with the program called Binary Trees (see "Computer Science"). Send $4 for the disk with both applications.

Photography

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Philadelphia, PA

Special Projects
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Microcomputing Program,
Drexel University, 32nd
and Chestnut Street,
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Project: F-stop Practice
A software-based drill and practice worksheet designed to test and strengthen students' understanding of the camera's f/stop scale. Worksheet features help when requested or when triggered by two consecutive incorrect responses. Similar to applications developed with the MatchMaker authoring tool.
Current status: Completed.

Project: Enlargement Tutorial
A software-based tutorial on making enlargement prints (for beginning photographers). It is designed to confront students one step at a time with the many decisions that need to be made in order to make high-quality enlargements. May be customized to reflect equipment and supplies being used. Several students can use the program at one time.
Current status: Probable completion in September 1985.

Physics

Project: Elementary Quantum Mechanics
Five programs that compute the following: transmission/reflection coefficients and energy eigenvalues for bound states (in piecewise constant potentials); energy bands and density of states (in one-dimensional, piecewise, continuous periodic lattices); energy eigenvalues in arbitrary binding potentials.
Current status: Completed, but not yet documented.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Introductory Physics Lab
These applications include prelab interactive tutorials, data collection and analysis, curve fitting, and graphical display. They include vector addition, freefall determination of the acceleration of gravity (demo and preclass simulation), conservation of linear momentum, calorimetery (analysis in Multiplan), wave motion (standing wave simulation), simple harmonic motion and spring constant determination (linear least-squares fit calculation and graph), and the refraction of light (analysis in Multiplan and prism simulation).
Current status: Completed.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Data Acquisition Control
An application for use in the freshman physics laboratory. It analyzes, records on disk, displays, and can replay data collected during the experiment. The application communicates with a single-board FORTH-based computer (through the Macintosh's serial port). The single-board computer uses data input signals from existing lab hardware.
Current status: Completed.

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Project: Physics Exercises
A set of 10 exercises designed by Prof. Blas Cabrera to improve the student's sense of several physics laws (includes projectile motion, potential well, Kepler's orbit, and harmonic oscillators, among others).
Current status: Completed and continuing.

Maria Code, Data Processing Services, 1371 Sydney Drive, Sunnyvale, CA 94097; (408) 735-8006

Project: Basic Physics Applications
This series of 14 programs in basic physics is intended for use in lecture demonstrations and for individual study by students.
1. Vector One: An animated diagram that shows the viewer how to take components of a vector on a set of X-Y axes.
2. Vector Two: Illustrates the adding together of two vectors by both the graphical and component addition techniques. (The processes are fully animated.)
3. Plane One: Describes the general technique for solving mechanical problems on an inclined plane. It also illustrates the preferred coordinate system and the resolution of the forces present onto these axes.
4. Hanging One: Illustrates a typical statics problem involving a weight suspended by two ropes making arbitrary angles with a wall and a ceiling. (The resolution of all of the forces present onto appropriate axes is illustrated by animation.)

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Physics

5. Shooting Ball: Shows a ball being projected vertically upward with an initial velocity. (The subsequent motion of the ball is simulated, and the potential and kinetic energies are graphed.)
6. Roller Coaster: Simulation of two-dimensional motion. This is the problem of an object undergoing roller-coaster motion. (The normal force of the track on the object is shown throughout the motion. The kinetic and potential energy functions are graphed.)
7. Momentum: Two hockey pucks collide and their motion is simulated. (The momentum function for each of the pucks is plotted.)
8. Graphing: A simple graphing routine to permit the plotting of a function of x vs. x.
9. Simple Harmonic Motion: A weight attached to a vertical spring is set into motion. (The amplitude, velocity, and acceleration of the weight are plotted as a function of time.)
10. Kinetic Gas Theory: A ball is permitted to bounce off four walls. Arrows indicating the component velocities of the ball follow its motion. (This simulation permits one to develop basic kinetic gas theory.)
11. Standing Wave: Demonstrates the principle of superpositions of waves that result in standing waves.
12. Beat Frequencies: Demonstrates the addition of two waves of nearly the same frequency resulting in "beat" frequency patterns.
13. Wave Superposition: Shows the way in which two square wave pulses interact on a string. (Constructive and destructive interferences are shown. Reflections from a rope end that is tied down, and from an open-ended rope are also shown.)
14. Ray Diagrams: Typical ray diagrams drawn for thin lenses and spherical mirrors.

Current status: Completed.

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(408) 735-8006

Project: Elementary Particle Theory

Four programs (of a total of eight) have been developed by Prof. Savas Dimopoulos for a physics series on elementary particle theory and on symmetrics and Lagrangians.

Current status: Completed and continuing.

Psychology

Project: Geometrically Rotated Text

There are three fonts useful for experiments in the fields of human perception and memory. Each requires the presentation of geometrically rotated text. Each is rotated about a different axis. More information will be published in an upcoming issue of *Behavior Research Methods, Instrumentation, and Computers.*
Current status: Completed.

David M. Lane,
Department of Psychology,
Rice University,
Houston, TX 77251-1892;
(713) 527-8101, 3412

Project: Stimuli for Recognition Memory Experiments

In 1980, Snodgrass and Vanderwart published norms for 260 line drawings. Each drawing is rated on name agreement, image agreement, familiarity, and visual complexity. These stimuli have been digitized and stored in MacPaint format for easy use in memory experiments.
Current status: The digitizing has been completed. A Microsoft BASIC program that can be used to present the stimuli should be completed by the time this is published.

John Brooks,
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Project: Machine Language Library for Use in Psychology Experiments

Microsoft BASIC allows programmers to provide their own machine-language libraries to supplement the BASIC language. This library will contain a series of routines designed to be used in psychology experiments. Currently, there are programs to do the following:

- Shuffle an array of integers quickly (6,000 or so in a second). This is useful for sampling without replacement.

- Black out the entire screen.

- Present a series of stimuli tachistoscopically and record reaction time.

One program under development will allow the sound drive to be used in dual-task and reaction-time experiments, particularly investigating Fitt's Law.
Current status: Library should be completed by this summer.

David M. Lane,
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Project: Analysis of Variance Program

This program is written in Microsoft BASIC and can analyze data from factorial designs with up to five between-subject variables and five within-subject variables. Unequal cell sizes are accommodated by unweighted means analysis. The program follows the Macintosh user interface guidelines.
Current status: A working version is available now. One with more flexible input formatting should be available by summer.

David M. Lane,
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Project: Demonstration Experiments in Psychology

Microsoft BASIC programs (with the occasional use of machine-language routines for tachistoscopic presentation and timing of responses) are being developed to demonstrate classical findings in experimental psychology. Iconic memory, lexical decision, memory scanning (using the additive factors approach), memory span, and recognition memory can be demonstrated.

David M. Lane,
Department of Psychology,
Rice University,
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(713) 527-8101, 3412

Special Projects Coordinator, Microcomputing Program, Drexel University, 32nd and Chestnut Street, Philadelphia, PA

Current status: Many of the programs are now working but need to be better documented and rewritten to take advantage of the new version of BASIC. Should be completed by August 15, 1985.

Project: MacLaboratory for Psychology

This application converts the Macintosh into a piece of usable research apparatus. Individual programs provide students with an array of tools for use throughout the psychology curriculum. Students may use these tools to carry out research experiments of their own design at both the introductory and more advanced levels. Tools already developed or under development are in the area of cognitive psychology (recognition and recall, Sternberg tasks, signal detection, and problem solving); perception and motor skills (vigilance tasks and motor factors such as mirror tracing, reaction time, and pursuit rotor); social psychology (effect of group size on problem-solving tasks); psychophysiology (detection of deception and polygraph simulation); neuropsychology (lateralization, structure, and function of the central nervous system); psychophysics (auditory and visual thresholds and iconic memory); and learning (operant and classical conditioning). In the future, tools will be developed for use in experiments in clinical counseling, tests and measurement, and industrial/organizational psychology.

Professor Allan Wagner, Yale University, c/o Box 220 Yale Station, New Haven, CT 06520

Current status: Some completed; others by June 1986.

Project: Mac Laboratory Interfaces

Psychology Professor Allan Wagner is shepherding a range of "Mactivities" in his animal learning lab. He is currently investigating the TAURUS system with MACQUISITION, a product of Small Business Computers of New England. A number of simple experiments have been simulated with the system so far. It is being adopted for use in an undergraduate lab course in animal learning. The system will be used initially to collect and display records of rat behavior. The experimenter, in spreadsheet template fashion, can assign both analog and binary channels for data acquisition, transmission, conversion, and triggering.

Current status: Continuing.

Project: SocStat: A Program to Compute Sociological Statistics

SocStat is a sociology laboratory on a Macintosh. It uses data sets from actual sociological surveys and allows the student to do elementary statistical analyses on them. Each data set (six are currently available) consists of up to 2,000 observations on up to 10 variables; each variable may have any of several values (different responses by the subjects of the survey).

The student can select a data set, and perform a set of analyses on it: absolute or relative frequency tabulations, cross-tabulations (with dependent, independent, and possible control variables), Yule's Q and Gamma tests, and chi-square tests.

The results of each analysis appear in a window, along with the specifications for that analysis. Many windows can be created. Any window can be printed. The disk included SOCSTAT (the program) and six data sets: social norms, stratification, social deviance, small groups, group influence, and marriage roles.
Current status: Completed. Send $4 for the disk.

Sociology

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Telecom-munications

Andrea Martin,
ICSA - Rice University,
Houston, TX 77251;
(713) 527-4965

Metaresearch, Inc.
1100 SE Woodward,
Portland, OR;
(503) 232-1712

Project: Kermit
Developed by: Rice Macintosh Software Development Project
Kermit is a program that lets microcomputers and mainframe computers communicate and transfer files safely. This implementation uses a standard Macintosh interface, supports server mode, and allows you to change the start of header character and various communications settings. It will also allow you to send full applications as well as text-only documents, and supports 8th-bit prefixing.
Current status: Currently in beta test.

Project: GriffinTerminal
GriffinTerminal was developed at Reed College. It is a Tektronix 4012 terminal emulator with complete graphics-animation capabilities. GriffinTerminal can transfer text and graphics files with easy, menu-selectable commands at baud rates of up to 38.4K. We typically use GriffinTerminal for communicating between our Macintoshes and a mainframe with a UNIX operating system, but we have also found it to be very useful for downloading code to external laboratory computers and devices for data collection and appliance control. GriffinTerminal now has QuickDraw capability and mouse interrogation routines.
Current status: Completed. Consortium price: $45. Retail price: $89.

Project: Macintosh Kermit
The Columbia University Center for Computing Activities has finally completed a Kermit program for the Macintosh. MacKermit provides file transfer and terminal emulation for the Macintosh and Macintosh XL computers, allowing them to communicate with a large and diverse collection of mainframes, minicomputers, and microcomputers.

MacKermit emulates the DEC VT100 and VT102 terminals at speeds up to 9,600 baud, and includes features sufficient to allow it to work with the EMACS video display editor on various DEC-20, VAX VMS, and UNIX systems, and with IBM mainframes via either ASCII TTY connections, or through 3270 protocol emulators such as Series/1, 7171, or 4994 front ends. A keyboard configurer is included, allowing definition or relocation of control, meta, and function keys.

Macintosh Kermit is based upon C-Kermit, and shares the common protocol modules with UNIX Kermit version 4. It incorporates the entire Kermit bag of tricks, including three block-check options, 8th-bit prefixing for passing 8-bit binary data through a 7-bit communication channel; compression of repeated data bytes; file transfer interruption per file and group; file name collision avoidance; time-outs; server operation; and a range of protocol, file, and communications option settings that can be saved in a MacKermit startup file along with any keyboard redefinitions. MacKermit should be able to successfully transfer files with any of the other 100 or more other systems for which Kermit programs have been written to date.

MacKermit employs the standard Macintosh user interface. It transfers both text and binary files, but it does not do any special format conversion. For instance, it will not send a MacWrite document to a foreign system as plain text (but MacWrite documents saved as text only may be sent to a foreign system in useful form). Plain text files brought from foreign systems may be used by most Macintosh applications; usually the application will offer to "convert" such files for you.

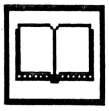
Macintosh Kermit is built on a UNIX system using the Stanford University Medical Center SUMACC cross-development tools, and is distributed in source and "binhex" form on the Columbia University Kermit distribution tapes.
Current status: Available.

Project: OWLNET

OWLNET involves connecting Macintoshes and IBM PCs to a 4341 running on the VM operating system to enable electronic mail and high-quality printing. A program was written that translates MacWrite files to SCRIPT files on the mainframe. It translates WordStar files as well.
Current status: Not applicable.

For your information only. No contact available.

Word Processing



This is public domain software available from DCS, 401 URIS Hall, Cornell University, Ithaca, NY 14853

For your information only. No contact available.

For your information only. No contact available.

Project: MacWrite Translator

The translator consists of two programs that allow you to translate a document from MacWrite version 3 (RAM-based) format to that of another word processor. Using MakeTable, you can define strings that will replace MacWrite's representation of style changes and ruler settings. Once you have designed a table, you can translate any MacWrite document by using the program Translate. The result will be a text-only document containing the strings you specified (if any) before and after the text affected by the style or ruler-setting change.
Current status: Available now.

Project: MacWrite to SCRIPT Translators

Brown University, Rice University, and Cornell University are all working on this. The Rice version is run on the IBM 3033 and is designed to be used in conjunction with Kermit files uploaded from the Macintosh. Cornell is also developing a number of other MacWrite translators including a MacWrite to WordStar translator.

Project: PostScript Translators

PostScript™ is the powerful graphics language built into the LaserWriter printer. It is a procedural language that produces graphics by line and shape commands rather than by absolute pixel specifications. To allow the LaserWriter to be used with a variety of existing mainframe and
minicomputer graphics packages, device drivers or "translators" must be written to perform the appropriate translations into PostScript commands. The University of Michigan is creating such an interpreter to allow a powerful mainframe graphics package, DI 3000, to be used with the LaserWriter.

Technical Development

Paul Velleman and Jerry Lefkowitz
Cornell University

Can developers stay friends?

We have been working together on a statistics package (***The Data Desk***) for the past 11 months. As the program has evolved from fragments of code to do isolated tasks into a large, complex package, and as we have grown from novice Macintosh programmers and designers to something approaching expertise, our collaboration has evolved. We have put together a few hints to help others who may be starting up Macintosh development projects.

Define clear-cut responsibilities. In our case, one of us (Jerry) has final authority over the code. When Paul writes code, he does so as Jerry's programmer; Paul has final authority over the design and documentation. When Jerry has design proposals, he must convince Paul before they are adopted.

Who does what?

Share responsibilities. We know this sounds like a contradiction to the previous hint, but it is just as necessary. In our case, no design decision has been accepted unless both of us agree (at times, after lengthy discussion and some compromise). Program bugs that don't yield to initial attacks have yielded to a joint attack—a programmer who hasn't seen that piece of code before can sometimes spot problems not visible to the author.

A little planning goes a long way.

Think through the design before you write code. The Macintosh is a *very* different machine to design for than any you have used before. It is not sufficient to port code from other environments or to simply try to use the graphics. The entire interaction of user and computer must be thought through carefully. We try to write the documentation for most major aspects of the program *before* we write the code. These are not technical specs, but user documentation. Our argument is that if we can't explain it to a novice, we probably didn't design it correctly.

Be flexible and willing to change.

Modify the design as you develop code. (Here we go, contradicting ourselves again.) Because Macintosh programs are user driven, it's much harder for the designer to envision all of the alternative situations the program might have to deal with. No matter how thoroughly you have thought through the design, you will probably find some special combination of circumstance and user action that gets you in trouble or leads to an inconsistency. Here again, collaboration helps. We approach programs differently, and thus find different sets of problems. Paul types ahead and clicks where he knows the OK button is about to appear, Jerry waits for the disk to stop spinning before clicking the mouse or pressing a key. (Jerry *knows* how fragile the code is.)

Talk, talk, talk, and more talk.

Communicate frequently. Our own office has evolved from casual conversations across the Lisa (oops, Macintosh XL—OOPS, Macintosh ex-XL) to semiweekly "staff meetings." Yes, there are still just two of us, but a regularly scheduled meeting time makes it possible to prepare things on paper, establish a real agenda, and cover more of what we really need to cover. We found that we were wasting time on discussions for which we had not prepared just because the subject came up at the time.

Testing MUST be thorough.

Take testing seriously. As we said, there are more paths through a Macintosh program than through programs on other machines. Every user approaches a Macintosh program differently, so every new user provides a chance to find a bug. We used The Data Desk in a second-term statistics course this past term. The 100 sophomores pounding on the program each week have found problems we might not otherwise have discovered until after we distributed the program more widely. (If you have had the feeling that you were beta testing Macintosh software you just paid good money for, the reason might be that it is simply very difficult to completely test a Macintosh program.)

Get something working, quickly.

Get a prototype running quickly and rewrite, *rewrite, rewrite*. You won't get it right the first time, so don't lose sleep over it. (You'll have plenty of other things to lose sleep over.) You will probably not even understand the problems until you try to get the code running. This goes for the design as well as the implementation. Only after you try out the prototype, or have to write the code for the special cases, will you see the flaws in the design.

Have a subject expert involved.

Subject-matter expertise needs to be wedded closely to design. The flexibility and immediacy of the Macintosh user interface make design flaws glare. Some programs now on the market have been criticized for designs that seem to come from programmers rather than from subject-matter experts. Conversely, the subject-matter expert must be familiar with Macintosh conventions.

The Macintosh connections.

The Macintosh is a heavily interconnected system. (Try picking one section of *Inside Macintosh*, seeing which other sections are prerequisites, and following the path backwards.) Changes made at one place in the code often affect operation of apparently unrelated parts of the code. In any Macintosh programming team, one person will emerge as the leader, in whose head resides the esoteric knowledge of these interconnnections. (This person will become indecently valuable to the project.) If this leader happens to be a student, you'd better make sure the project gets finished before graduation.

Macintosh programs are also heavily interconnected. Changes in the design of one part of the program may make other parts of the program inconsistent or confusing. Here again, a principal designer is needed to keep things consistent.

The learning curve for the Macintosh is a step function. Everyone begins by knowing nothing. (Everything you knew from other machines is wrong.) Suddenly, you will find that you can deal with text, or with windows, or with pictures and that this opens up an unanticipated wealth of capabilities. But then it's back to square one to learn about the next piece. It is very hard to estimate the slope of a step function, so it is difficult to judge progress on a large Macintosh project. Hence, our final hint:

It's never over until it's over.

It will take longer than that to finish the program.

Pascal Development

Here are a few simple hints for developers using Lisa Pascal (on a Macintosh XL) to do development for the Macintosh.

Jerry Lefkowitz
Cornell University.

Accessing system global variables from Pascal

There are many places in *Inside Macintosh* that contain statements such as, "The global variable X contains mumble." For example, the Window Manager documentation contains the assembly-language note: The global variable windowList contains a pointer to the first window in the window list.

You can access/alter these "system global variables" as follows:

1. Determine the variable's address and length. This can be done by examining the workshop file **"TLAsm/ToolEqu."** For example, windowList is stored at hex location 9D6, and the comment in the file tells you that it is a pointer (that is, stored in a long integer).
2. Declare a Pascal variable whose type is a pointer to a variable of the appropriate length. For example, declare variable "ptr2LongInt" of type ^LongInt.
3. If you now declare a Pascal variable called "wList" of type Ptr, then you can copy the value in windowList into wList with

```
ptr2LongInt := Pointer($9D6);
wList := Pointer(ptr2LongInt^);
```

If you wanted to store a value (for example, 12345) in windowList, you could now do it with **ptr2LongInt^ := 12345;**

A global scratch area

Global scratch area available.

There is a 12-byte scratch area reserved for use by applications, beginning at memory location $A78. (In the most recent version of TLAsm/ToolEqu, this variable has the name ApplScratch. In previous versions it had the name Microsoft, and the comment referred to it as "12 bytes for our friends in Seattle." It must be nice to have clout.) I have found it useful to store the reference number of any files that I open in this scratch area (using the technique illustrated earlier). The reason will become clearer below.

Activating the Resume button

Make that Resume button resume.

Here is a simple technique for getting the Resume button in the system-error alert to be active. Write a procedure, which we will now call MySysError, that contains a call to ExitToShell. If your initialization code contains the statement InitDialogs(Nil), you should change it to **InitDialogs(@MySysError).**

If your initialization code doesn't call InitDialogs, add this statement. The Resume button in the system-error alert will now be active, and if you press it your program will simply exit to the Finder.

One thing that used to cause problems for me was that the program I was developing always had a resource file open, and when I crashed, the file would become unreadable. What I do now is store the refnum for the file in the first two bytes of ApplScratch when I open the file. If I crash, I press the Resume button, causing MySysError to extract the refnum from ApplScratch and do an FSClose on the file before doing an ExitToShell. This way, at least I don't lose the file.

Comments on Switcher

A Software Developer's Guide to Switcher
Andy Hertzfeld

Andy Hertzfeld talks about the Switcher application.

The Macintosh Switcher creates a dynamic new software environment for the Macintosh 512K (or larger), allowing multiple application programs to reside simultaneously in memory and providing a way to switch between them very quickly. The Switcher tries to support every Macintosh application, but the interface between a program and its environment is very complex, and Switcher necessarily disturbs this delicate balance, so some programs are not compatible with it. This document is intended for an audience of Macintosh software developers, and will provide suggestions and hints that will help your application to get the most out of the Switcher environment.

The most recent version of the Switcher is version 4.4, the final release. Included with the release are new versions of the Macsbug debugger that are compatible with the Switcher. Earlier versions of Macsbug had a bug that made them not work with Switcher, so be sure to use these new versions when testing your applications out with Switcher. When you find that you application doesn't work properly with Switcher, please try to pinpoint the difficulty as precisely as possible when reporting the bug; these can be reported to Apple, on MAUG/CompuServe (my number is 70167,3430).

Switcher fudges memory size statistics.

One source of developer confusion is caused by the way the Switcher fudges memory size statistics. It turns out you have to allocate a 96K partition for an application to have approximately the same amount of memory it has on a Macintosh 128K. To avoid confusion for the typical user, the Switcher adds 32K to the size of a partition before displaying it. Thus partition sizes are "normalized" to the well-known Macintosh 128K; for example, a partition that's displayed as 256K actually only has 224K allocated to it.

The Switcher knows how much memory to allocate to a given program by inspecting the "SIZE-1" resource attached to the program file. The Switcher is capable of generating its own SIZE blocks using the Configure command, but it would be very nice if new applications could come preconfigured for their own unique memory requirements and other properties. The size block is 10 bytes long; there is a flags word followed by two long integers. The first long integer is the recommended size of the partition, followed by the minimum size. The values are 32K less than the virtual partition size (that is, 96K for a 128K partition). Currently, only the high two bits of the flags word are defined. Bit 15 means "save screen," and bit 14 means "Suspend/Resume" events (see below). Unassigned bits should be kept 0 for future compatibility.

Some applications only look for 128K or 512K Macintoshes.

While working at Apple, I had the opportunity to watch a number of fairly complicated Macintosh applications go through their final debugging cycles. The most time-consuming and difficult part of this process is what you might call "memory tuning," which is dealing with various out-of-memory situations and with memory fragmentation. Typically, an application is tested and tuned to run on both standard Macintoshes. However, the Switcher environment supports variable-sized partitions, so many more memory situations become possible (for example, a 256K Macintosh). The biggest problem most applications have working smoothly with the Switcher is that they were tuned for 128K or 512K, and sometimes are freaked out by something in between, (they make decisions like "It's not 128, so it must be 512"). Switcher-friendly applications should test memory to see how much is available and be able to deal with a wide range of memory sizes. The best way to size memory initially is to grow the heapZone out to its maximum size by requesting an enormous block, and then execute a "FreeMem" or "MaxMem" call. After initialization, the best way to determine if a certain amount of memory is currently available is to use the "ReserveMem" call. Switcher also sets up the low-memory location "MemTop" with the size of the current partition normalized to a 128K Macintosh, but it is not recommended that memory-sizing decisions be based on that. Make sure you never make any assumptions about how much memory is available by looking at absolute addresses, because you don't know where you are going to be loaded.

You have to worry about duplicate temporary file names.

Many applications have a need to create temporary disk files using a file name generated by the application, like "Edit.Scratch" or "Paint1". Since the Switcher environment supports running the same application twice, file name conflicts are possible. A Switcher-friendly application should never use a hard-wired name for a temp file; instead, it should make up one using a random number or the time-of-day clock, so the names will not conflict if it's running concurrently in two different partitions. For example, instead of using "Paint1," use "Paint03:12:35."

Some Switcher incompatibilities developers need to watch out for.

Switcher switches contexts only when an application executes a "GetNextEvent" call, so applications never have to fear being suspended when they are engaged in some time-critical activity. To be compatible with Switcher, your application must call GetNextEvent periodically (as most applications do). To be able to cut and paste under Switcher, your application must support desk accessories by maintaining an Apple menu, and supporting cutting and pasting with

desk accessories. This is because Switcher fools your application into coercing the ClipBoard into global format by making it think it's cutting or pasting into a desk accessory. Watch out for an entry in the desk accessory menu that isn't really a desk accessory. See the discussion below on Suspend/Resume events for further information on the "desk-accessory charade."

Another potential danger area for Switcher compatibility involves timing. In the Switcher environment, an application can be suspended for an indefinite period. Some applications use "Ticks" for relative timing; they must be careful to use 32-bit compares and arithmetic, because Switcher makes it possible for more than 64K ticks to have elapsed since the last time you looked at it.

Even though the Switcher is intended to work "behind the back" of most applications, it includes some features that allow newly written programs to perform very smoothly with it. For example, if an application knew it was about to be suspended, it could clean up its act by killing I/O tasks, and so forth. To deal with this, the Switcher provides optional Suspend/Resume events. A Suspend event means that the next time you call GetNextEvent, you will be suspended. A Resume event is the first event you get back after you've been re-activated following a suspension. Suspend and Resume events are both reported as event 15 (formerly an application-defined event). The high byte of the message field is set to 01 to indicate that it's a Suspend/Resume event (eventually event 15 will be used for other purposes as well). The lowest bit of the message field (bit 0) is clear if it's a Suspend event and set if it's a Resume event. The next bit up (bit 1) is set if Clipboard coercion is required. The Switcher uses bit 14 of the flags word in the SIZE record to indicate whether a program should receive Suspend/Resume events. If this bit is set, the Switcher won't put on the desk accessory charade for Clipboard coercion, as it assumes that the application is converting the Clipboard when requested to in the Suspend/Resume event.

Application integration using the Switcher.

An even more exciting area is that of "interlocking" applications that run fine by themselves but are ultra-integrated when run together under the Switcher. Applications can find out the global picture by inspecting Switcher globals. Switcher globals are accessed through a low-memory pointer kept at address $282. If the pointer kept there is -1 or 0, it means that the application is not currently running under the Switcher. Otherwise', it's a pointer to a public table of Switcher global variables. The first eight longWords in the table are a list of pointers to the base of all currently active applications, or 0 if no application is present in a given slot. By inspecting this table, applications can determine what other applications they are coexisting with and where they are located. Apple will eventually provide complete documentation on effectively using this "world" table, as well as detailing some other useful Switcher globals.

All in all, it is amazing to me how many programs *do* run properly under the Switcher. Most developers shouldn't have to worry about or understand all of the stuff discussed here; ordinary applications usually run just fine.

It's been fun working on the Switcher. To diagnose various crashes, I had to trace through the guts of lots of very different applications. Countless features and strategy shifts were implemented to support this or that application. As a designer of the Macintosh system, I'm one of the very few who never had the experience of trying to learn how it works. In a way, developing the Switcher was the application programmer's revenge for that experience. It certainly gave me a new appreciation for our strange and wonderful software base.

International News

USE OF MICROCOMPUTERS IN MEXICAN UNIVERSITIES

A RESEARCH PROJECT SPONSORED BY THE MINISTRY OF EDUCATION

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Kensington, CA 94707
(415) 525-0624

SUMMARY. The research project described in this document is part of a wider program sponsored by the Ministry of Public Education and other Mexican governmental agencies that aims to introduce microcomputers in all levels of the national educational system.

Introducing micros at all levels of education.

This particular project deals only with the university level, and there, only with those who use microcomputers in the learning process. The purpose of this project is to define the appropriate technologies for the Mexican—higher education system, taking into consideration economic, social, political, and cultural frames of reference. **The main objective is to define a multipurpose "laboratory" that will, in a second stage of the project, be implemented in each of thirty state sponsored universities.** This laboratory will serve each institution as an educational software development center, as a research center to investigate computer based educational technologies, and as a small-scale training center.

The basic laboratory will have a modular design so that it can be expanded and developed differently in each institution, according to the institution's particular resources and interests. The laboratory will stress the use of authoring systems, program generators, and other software to produce software.

Using microcomputer laboratories.

It is hoped that the laboratories will work as seeds for the dissemination of computer-assisted educational technologies in the Mexican higher-education system.

In the last few years, interest in computer-assisted instruction has appeared. The personal computer is seen as a tool with great potential. However, there is an awareness that technology by itself is not the complete solution. The use of high technology must be part of a coordinated effort involving the government, educational institutions, professors, and students, and must involve profound changes both in structures and attitudes. The solutions found for other countries cannot be imported as turnkey systems. They must be developed and carefully adapted to the social, cultural, and economic characteristics of Mexico. In particular, the educational software to be used must be developed locally.

With these considerations in mind, the Ministry of Public Education has begun a long range program that will define the use of microcomputers in the state supported educational system at all levels. The first stage of this program includes several research projects that will be instrumental in the definition of the appropriate technology and the corresponding policies and strategies for its introduction and use. One of these projects is described in the following paragraphs.

UNIVERSITY MICRO/EDUCATION LABORATORIES.
The objective of this project is to plant in each of the state supported universities a common seed: A basic "micro/education laboratory". This laboratory will be a center for the production of educational software and for conducting research in computer-assisted instruction. It will also have limited educational and training functions. With the support of this center, the professors, assistants, and advanced students will be able to develop courseware. Within each university the laboratory will be instrumental to the dissemination of microcomputers on campus.

Labs should be customized to the institution.

It is to be expected, and in fact desired, that in each university the basic laboratory will grow and develop differently according to the characteristics of each institution. However, it is essential that the courseware produced in any of them can be used by all the others. Therefore the design of the basic laboratory should be modular and incorporate a set of guidelines, standards, and restrictions in order to ensure compatibility of production.

The strategy outlined above will allow for the independent development of computer-based learning in each institution while maintaining the coordinated growth of the system as a whole.

The project is subdivided into two parts which will be conducted in parallel during 1985 by a small interdisciplinary research group: 1) the definition of the laboratory itself and, 2) a review of what is being done in American universities in the use of microcomputers for the educational process. By early 1986, all the parts of the main project will be ready for implementation.

THE BASIC MICRO/EDUCATION LABORATORY.

The basic laboratory will consist of a local area network linking six or eight microcomputers with common peripherals and file serving storage. The design criteria are the following:

Objectives of the labs.

- The micro/education laboratory will be used as a courseware development system and as a center for conducting research on computer-assisted educational technologies. It will have a small staff of its own and will give support to professors and teachers for their courseware and development research. In addition, it will be the site of limited training functions.

- The design shall be modular, with a minimal unit that will be able to grow in precisely defined modules in order to increase its range. However, provisions must be made to allow each implementation of the basic laboratory to develop in different directions, maintaining compatibility of production throughout the system.

- The design of the laboratory should strive for upward compatibility and hardware interdependence to allow for the inclusion of new developments and technologies.

- A special emphasis will be placed on authoring systems, program generators and software to produce software. The generation of expert systems is of particular interest.

- The laboratory must be able to link with existing mainframes, and larger networks, and to access information utilities and data bases.

- The inclusion of several sources of information input and output is fundamental: video digitizer, voice input, digitizing tablet, light pen, character reader, plotters, printers, imaging systems, video projectors, slide production, voice and music synthesis, electronic publishing, interactive videodisc technology, and so forth.

Software being considered for use in the labs.

The following categories of software should be considered:

- Operating systems
- Programming languages
- Productivity tools: word processing, spreadsheet, communications, project management, DBMS, accounting, and others.
- Imaging and graphics: animation, painting, 2-D graphics, 3-D graphics, image processing
- Simulation software
- Educational software: Examples of the latest educational packages at the university level
- Software to write software: program generators, authoring systems, and expert-systems generators

First International Consortium Meeting

Lund University hosts first Consortium meeting in June.

Lund University in Sweden and Apple Computer held the first Apple University Consortium Conference in Europe June 18—20. The objective of the conference was to establish an international exchange of information among Consortium members on microcomputers in general and the Macintosh in particular.

Lund University acted as host, which was appropriate because the university is playing a leading role in the area of university computerization in Scandinavia. Lund was responsible for starting a special program, in which the strategies for using computers for education and research in the university setting have been defined. Last September, Lund University became the first University in Europe that made a major commitment to integrate Macintosh in its institution and curriculum.

Inspired by the success of the Apple University Consortium in the United States, it was decided that Apple University Consortium would also be established in Europe. The conference in Lund was the inaugurative meeting of the European Consortium, which is closely linked with the U.S. Consortium.

As the first part of the conference, Lund University presented its strategies for university computing. Furthermore, the conference was used as an opportunity to introduce the leading European universities to the many achievements in microcomputing that have been made so far, both in the U.S. and in Europe. The U.S. Consortium was well represented.

The events at the Conference included:

- AUC project demonstrations
- AUC videos of activities at various schools
- Third-Party product demonstrations.

Speakers focused on the use of the Macintosh.

Speakers and topics included:

- Michael Spindler, Vice President International Division, Apple Computer, Inc., "Apple's Commitment to the Universities"

- Carl Gustaf Andren, Chancellor of the Swedish Universities, "The Computerization of a University: The Lund Model"

- Hakan Westling, Rektor of Lund University, "Lund University, an International and Regional University"

- Ove Pettersson, Rector of Lund Institute of Technology and Natural Sciences, "The Computerization of Lund University: Strategies, Problems, and Advantages"

• William S. Shipp, Assistant Provost Brown University; Goran Hermeren, Lund University, "Lund University and Brown University, Evaluation of a Joint Project"

• Dr. Peter Olivieri, Associate Professor of Computer Science, "Experiences in Introducing the Macintosh in Boston College"

• Michael Tchao, Assistant Professor of Computer Science, Stanford University, "Using the Macintosh as a Supporting Tool in Teaching"

• Prof. J. Nievergelt, ETH : Federal Institute of Technology, Zurich, "Programming Language Development: Trends and New Possibilities"

• Steve Maker, Manager of Application Development, Dartmouth College, "Managing a University Applications Development Group"

• Rick Jansen, University of Amsterdam, "TEX Preview. A Device-Independent Graphics Display Program "

• William Arms, Vice Provost for Computing and Planning, Dartmouth College, "Using the Macintosh in a Networking Environment"

In addition, there were a variety of more specific breakout sessions. The next issue of **Wheels for the Mind** will present an expanded section on conference activities.

Austrailia and Macintosh

Australian version of MACWorld.

The Macintosh has made a significant impact in universities in Australia. The premiere issue of Australian Macworld appeared as a February/March issue this year. It contained features on the *"Macintosh Means Business"* promotion, the LaserWriter, and AppleTalk.

The Department of Computing Science at the University of Wollongong in Australia (P.O. BOX 1144, Wollongong, N.S.W. 2500) (tel. 042-270-859) has produces some quality materials in support of using the Macintosh in the academic environment. The titles include:

INTRODUCE ME TO MY MACINTOSH, by Jennifer Callacott, Preprint No. 85-6 January 1985 (60 pages)

Macintosh course materials.

In the first year, students need to know how to operate the Macintosh computer, how to create text documents, and how to create and execute Pascal programs. This manual offers instruction on all of the preceding, although Pascal programming is not taught.

The Macintosh hardware system is explained, along with the desktop concept of the operating system. A MacWrite application is outlined and the Macintosh Pascal environment is described.

Although this report assumes that the student has no previous knowledge of a computer, it leaves a few concepts and functions undescribed to allow the student to experiment with and discover the Macintosh.

After a thorough reading of these notes and practical hands-on sessions, the student should be quite familiar—and at ease—with the Macintosh computer.

AN INTRODUCTION TO COMPUTER SYSTEMS by Dr. N.A.B. Gray,
Preprint No. 84-18 December 1984 (20 chapters)

Learning about Computer Science.

This text is designed for a one-semester course at about the level of course CS-3: Introduction to Computer Systems of the ACM Curriculum-78 recommendations. The minimum prerequisite for entry to such a course would be a one-semester introductory course on computer programming (preferably in Pascal). This is a very thorough text that covers the main components of a computer system, operations of an accumulator, use of bit patterns as data types, the instruction set of a simulated machine, subroutines and programming, assembly, using peripheral devices, interrupt handling, a close look at the CPU, and a variety of other topics.

The teaching system comes on a Macintosh disk along with some additional documentation giving details on how to run the program. The disk has a number of example programs.

Contact the Department of Computing Science at the University of Wollongong in Australia (P.O. BOX 1144, Wollongong, N.S.W. 2500) (tel. 042-270-859).

University Consortium members in Australia.

University Consortium members in Australia include:

- Wollongong University
- University of Tasmania
- University of Western Australia
- Western Australian Institute of Technology (WAIT)
- University of Adelaide
- The University of Melbourne
- NSW Institute of Technology
- Australia National University
- University of NSW (ANUTACH)
- Sydney University
- New South Wales Institute of Technology

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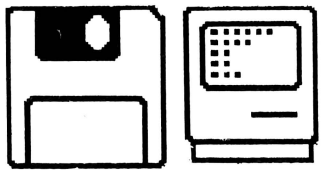
Macintosh Products: Hardware and Software



This "MACINTOSH PRODUCTS" portion of **Wheels for the Mind** will provide information about third-party products for the Macintosh. All information will be organized by application area where appropriate. Any review of products will be unashamedly subjective and will usually reflect the opinions of one user. Please use the reviews as a reference point only. In order to make it as easy as possible for you to keep up with what is available, new listings will appear in boldface type.

If the phrase, "NO FEEDBACK YET" appears next to a selection, it simply means that the person preparing the review has not yet tried the product, or has not received feedback from other users. As we get reactions to various products, this, of course, will change. If there are articles or reviews available for a particular product, these citations will appear along with the product description.

Some products that you would expect to see in this listing are not yet here. This, too, will change in the near future. As time passes, we hope to have an exhaustive list of Macintosh products. As we progress through the year, **this list should become annotated with the experiences and comments of all you readers out there.**

Thus, in time, this section could become a very valuable resource for those selecting or recommending available Macintosh products. In fact, it may be the only such reference available. However, it will only work if you help. **Please send in your observations about the Macintosh products you have used.**

Business

Front Desk by Layered, Inc., maintains schedules for up to 15 people, places, or things, allowing the user to look at everyone's calendar, weekly schedule, or monthly schedule. Helps keep appointments and schedules. (617) 423-9041 (Mass.). (NO FEEDBACK YET)

Front Desk	**A+ Magazine**	**Jun. 85**	**p. 107**
Front Desk	**MACAZINE**	**Jun. 85**	**p. 80**

Spreadsheet Link by Dow Jones (used with Multiplan) and Dow Jones **Market Manager PLUS** for portfolio management. (800) 345-8500, x100. (NO FEEDBACK YET)

Back to Basics Accounting System by Peachtree Software is an uncomplicated, easy-to-learn accounting system for small businesses. Includes General Ledger, Accounts Payable, and Accounts Receivable. (800) 554-8900. (NO FEEDBACK YET)

Back to Basics in Accounting — A+ Magazine — April '85

General Ledger is the first model in a series of business-related software to be introduced for the Macintosh. It allows the user to create a balance sheet, profit and loss statement, and a trial balance. The SmoothTalker speech synthesizer is incorporated into the application to warn of errors and mistakes. Some of the possible reports include: projected income and expense accounts, comparative analyses, variance reports, detailed journals, P&L statements and much more. Price: $395. Vendor: Future Design Software, 13681 Williamette Dr., Westminster, CA 92683; (714) 891-9796. (NO FEEDBACK YET)

Accounting Series for a hard disk (the Tecmar hard disk is necessary; other drives will be added to the compatibility list shortly). The first modules to be announced include General Ledger, Accounts Receivable, Accounts Payable, Payroll, and Inventory Management. (Other modules under development are Job Costing, Estimating, and Prebilling.) Each module retails for $695. Vendor: Great Plains Software, 1701 S.W. 38th St., Fargo, ND 58103; (701) 281-0550. (NO FEEDBACK YET)

Maccountant is an accounting package designed for small businesses. With it, you can prepare income statements, accounts payable, accounts receivable, balance sheets, and general ledger accounts. Free demo disk available. Price: $195. Vendor: Digital Etc., 1749 14th St., Santa Monica, CA 90404; (213) 452-5636. (NO FEEDBACK YET)

MacInTax is an income tax program for individuals. It is mouse driven and contains the complete IRS instruction book on disk. Call to see if it contains the IRS forms that you need. Price: $75. Vendor: SoftWeave, 400 Mobil Ave. Bldg. D, Suite C, Camarillo, CA 93010; (805) 388-2626. (NO FEEDBACK YET)

Tax Wizard is a program that allows access to more than 20 IRS forms. Call to see if it's ready and if it contains the IRS forms that you need. Price: $64.95. Vendor: Software Resource (distributor), 817 Tenth St. #102, Santa Monica, CA 90403; (800) 851-9010 or (800) 851-9009. (NO FEEDBACK YET)

Tax Planner uses Microsoft's Multiplan to provide a very comprehensive set of tax templates. Complete tax tables are included. Call to see if it's ready and if it contains the IRS forms that you need. Price: $49.95. Vendor: Apropos Software, Inc., 64 Hillview Ave., Los Altos, CA 94022; (415) 948-7227. (NO FEEDBACK YET)

Tax-Prep uses Microsoft's Multiplan package to help the wage earner prepare up to 22 different tax schedules and forms. Call to see if it's ready and if it contains the IRS forms that you need. Price: $99.95. Vendor: EZ Ware Corporation, 17 Bryn Mawr Ave., Bala Cynwyd, PA 19004; (215) 667-4064. (NO FEEDBACK YET)

Tax Manager calculates, prepares, reviews, and prints federal income tax forms. It automatically will choose the method that results in the least amount of tax for your income situation. Call to see if it's ready and if it contains the IRS forms that you need. Price: $180. Vendor: MicroLab, 2699 Skokie Valley Road, Highland Park, IL 60035; (312) 433-7550. (NO FEEDBACK YET)

The Tax Man Cometh (several packages)	MACWORLD	March '85	p. 106

MegaForm is a forms designer that functions as a spreadsheet, data base, forms generator, and report generator. Information on one of your customized forms can be automatically calculated, much like a spreadsheet. Provides a library of ready-made forms ranging from invoices to tax forms; numbers forms sequentially; works with preprinted forms, if you wish; has MacPaintlike drawing tools; and provides a selection of business graphics for your use. Vendor: Megahaus, 5703 Oberlin Drive, San Diego, CA 92112; (800) 358-8882, or in California, (619) 450-1230. (NO FEEDBACK YET)

MegaForm	MACWORLD	July '85	p.86

Dollars and $ense by Monogram helps you manage your money. It defines budgets on up to 120 accounts, writes checks, makes transactions automatically, and can prepare a full set of reports and graphics. (213) 215-0529 (Calif.). (NO FEEDBACK YET)

MacFinance is a financial analysis application. With it, you can determine the future value of an investment or calculate liquidity ratios, market ratios, activity ratios, ROI, depreciation, cost analyses, BE analysis, and bond yield analysis, as well as loan and mortgage calculations. Price: $99.95. Vendor: Superex Business Software, 151 Ludlow St., Yonkers, Ny 10705; (800) 862-8800, or in New York, (914) 964-5200. (NO FEEDBACK YET)

Stock Portfolio System helps you manage a portfolio of stocks, bonds, mutual funds, options, CDs, and money-market funds, as well as other cash investments. Once data has been entered (either typed in or downloaded from Dow Jones), nine reports can be generated. These include profit and loss statements, current portfolio status, interest income and expenses, and a dividend income statement. Up-to-date tax laws (1984) are included. You need a Macintosh 512K. Price: $225 (annual updates will be $65). Vendor: Smith MicroSoftware, Inc., P.O. Box 7137, Huntington Beach, CA 92615; (714) 964-0412. (NO FEEDBACK YET)

The Investor is designed as an aid in financial decision making and tax planning. It is a computerized management system for handling stocks, funds, bonds, margin accounts, and much more. The standard analysis reports are possible. A graphics feature allows the user to plot various relationships. Automatic updating by connecting to Dow Jones service is supported. A simulation feature permits the asking of "What if?" questions concerning your buying and/or selling preferences. Price: $150. Vendor: P^3, Inc., 949 Parklane Center, Wichita, KS 67218; (316) 686-2000. (NO FEEDBACK YET)

PageMaker is a newsletter-publication preparation tool that allows the user to design very sophisticated copy for printing on a LaserWriter or as camera-ready copy. This entire issue was prepared using a prerelease version of PageMaker. It is the kind of product that could have been listed under Graphics or Word Processing as well. Users can place MacWrite or Microsoft Word documents on a sample (reduced size) page. Pictures and graphics can easily be incorporated. Graphic images can be cropped as well as proportionally reduced. This is an excellent product with many advanced features that facilitate the preparation of professional-looking publication materials. Available from Aldus Corp., 616 First Avenue, Suite 400, Seattle, WA 98104; (206) 467-8165.

PageMaker	**ICON REVIEW**	**Summer 85**	**p. 15**
PageMaker	**MACWORLD**	**Jul. 85**	**p. 76**

Integrated Packages

Excel versus Jazz	**INFOWORLD**	**May 20, 85**	**p.17**
Jazz Ships to Eager Dealers	**INFOWORLD**	**Jun. 10, 85**	
Excel for the MAC	**INFOWORLD**	**May 27, 85**	**p.28**
Ensemble	**INFOWORLD**	**May 20, 85**	**p.47**
Ensemble	**ICON REVIEW**	**Summer 85**	**p.3**
Integrated Software Meets Mac	**POP COMP.**	**Jun. 85**	**p.11**
Microsoft Integrated Series	**POP COMP.**	**Jun. 85**	**p.104**

Business Realted Packages

The Mac Office	A+ MAGAZINE	Mar. 85	p. 26
Apples for the Office	INFOWORLD	Dec. 31, 84	p. 26
AppleTalk Network	A+ MAGAZINE	Mar. 85	p. 35
AppleTalk Developers	INFOWORLD	Mar. 11, 85	p. 20
LaserFonts	MACWORLD	Feb. 85	p. 45
The LaserWriter	MACWORLD	Feb. 85	p. 70
Mac Goes Pro Forma (MegaForm)	MACWORLD	**Jul. 85**	**p.84**
Macs on the Audit Trail	MACWORLD	Feb. 85	p.150
Corporate Computing	A+ MAGAZINE	Apr. 85	p. 78
MacProject	MACWORLD	July/Aug 84	p. 52
MacProject (Review)	INFOWORLD	Mar. 11, 85	p. 37
Habadex Appt. Book	INFOWORLD	Oct. 1, 84	p. 62
The Sales Edge Behavioral	MACWORLD	Dec. 84	p.102
Misc. Business Applications	A+ MAGAZINE	Dec. 84	p.144
MegaMerge	INFOWORLD	**Apr. 8, 85**	**p.50**
MacPublisher	A+ MAGAZINE	**Jun. 85**	**p.119**
MacPublisher	ICON REVIEW	**Summer 85**	**p. 15**
MacPublisher	MACWORLD	**Jul. 85**	**p. 72**

Computer Languages

Microsoft BASIC 2.0 is available from Microsoft. It is significantly better than the earlier version. New features include the ability to create your own custom menu items, dialog boxes, windows, buttons, and much more. The new manual is bigger and better and includes clear and accurate examples of event trapping and a variety of other programs illustrating how to take full advantage of the unique Macintosh interface. It is an interpreted BASIC, so it is a bit slow. However, the new features and an improved user interface make this a very good choice for BASIC users or teachers.

Microsoft BASIC	A+ MAGAZINE	Jun. 85	p. 123,132
Microsoft BASIC 2.0	MACWORLD	Dec. 84	p. 86
Microsoft BASIC 2.0	BYTE	Jan. 85	p. 155
Microsoft BASIC 2.1	A+ MAGAZINE	**Jul. 85**	**p. 119**

CP/M for your Macintosh. For $395, you get two volumes of documentation from Digital Research and IQ Software with six disks of programs. These programs include CP/M; a C-language compiler, macroassembler, and terminal emulation; and a standard printer driver for setting up your own printer configurations. CP/M 68K programs will run on your Macintosh. Plus CP/M 2.2 (8080) will run on your Macintosh 512K. Write for a Macintosh CP/M Software Catalog. IQ Software, 2229 E. Loop 820 N., Ft. Worth, TX 76118; (817) 589-2000. (NO FEEDBACK YET)

BASIC Compilers. Pterodactyl Software is designing a PC BASIC compiler that will compile your programs on the Lisa (Macintosh XL) so they can run on the Macintosh. It is not only compatible with the IBM PC BASIC compiler, but numerous extensions are added (mouse and QuickDraw routines). The Lisa version of PC BASIC runs under the Lisa Workshop. It is ready now. The Macintosh cross-compiler requires a Lisa with Workshop and Software
Supplement. Current prices: Lisa to Macintosh Cross-Compiler - $1,000 (with runtime license); Lisa Compiler - $250 (without runtime license). Vendor: Pterodactyl Software, 200 Bolinas Road #27, Fairfax, CA 94930; (415) 485-0714. (NO FEEDBACK YET)

Neon is an object-oriented programming language. It uses an environment like SmallTalk to allow access to the Macintosh toolbox. Programmers can then use the objects in the toolbox to create programs. Using this language results in very compact and executable code. Portions of any written program can be done in assembly language to improve speed. Included in the language are easy access to QuickDraw routines and a mouse-driven editor. Price: $150. Vendor: Kryia Systems, Inc., 505 N. Lake Shore Drive #5510, Chicago, IL 60611; (312) 822-0624. (NO FEEDBACK YET)

MacNosy is called by some "the disassembler for the rest of us." It is an interactive disassembler that enables Macintosh developers and Macintosh hackers to recover the source code of any Macintosh application file, ROM, or code-type resources in the System file. It runs on the Macintosh 512K and one-megabyte Lisa systems. With it, the developer can do the following: subdivide a program into procedures using a treework and flow analysis, selectively view procedures, produce a reference map for procedure names or trap names, and much more. Use of this product requires knowledge of programming and assembly language. Price: $50. MacNosy is available directly from Jasik Designs, 343 Trenton Way, Menlo Park, CA 94025. (NO FEEDBACK YET)

MacNosy	A+ MAGAZINE	Jun. 85	p. 145

MacTraps is a collection of Macintosh PROCEDURE and FUNCTION calls. With this valuable programmer's resource, you can access the format of many of the codes referenced in *Inside Macintosh.* There are three different types of objects in MacTraps: (1) "Names" describes either the name of the chapter or the name of the section(s), (2) "Nodes" refers to the icons representing the names, (3) "Links" indicates the lines that let you select what chapter you wish by clicking on the line and then linking to the file of interest. Vendor: Network Nexus, 3 Twin Dolphin Dr., Suite 220, Redwood City, CA 94065; (415) 591-2101. (NO FEEDBACK YET)

Macintosh Pascal is an interpreted Pascal. The main difference between it and UCSD Pascal is the screen environment within which you work. Running, stepping, filing, editing, and printing operations can all be performed within windows on the Macintosh screen. Available from Apple Computer.

Microsoft Pascal	MACWORLD	May-Jun. 84	p. 86
Pascal	POP. COMP.	Oct. 84	p. 90
"Why Use Pascal?"	A+ MAGAZINE	Oct. 84	p. 79
Mac Pascal	A+ MAGAZINE	Nov. 84	p. 103
Mac Pascal Primer Part I	A+ MAGAZINE	Mar. 85	p. 95
Mac Pascal Primer Part II	A+ MAGAZINE	Apr. 85	p. 95
MacPascal	**MACWORLD**	**Apr. 85**	**p. 123**
C-Worthy Compiler (Consulair)	**A+ MAGAZINE**	**May 85**	**p. 143**
ExperLogo	**INFOWORLD**	**May 13, 85**	**p. 52**

Manx Software Systems has **Aztec C68K C** for the Macintosh ($499). Also, **Aztec C68K-P** ($199), **Aztec C68K TOOLS** ($249). (800) 221-0440, or in New Jersey call (201) 780-4004. (NO FEEDBACK YET)

ExperLISP is the first complete implementation of LISP on a microcomputer. Developed on a Symbolics 3600, the compiler generates code optimized for the MC68000 microprocessor. The resultant speed combines with the "LISP machine-like" features of the Macintosh to create a LISP environment that is very effective on a microcomputer. This is a great language for developing artificial intelligence and expert-systems applications. Contact ExperTelligence, 559 San Ysidro Road, Santa Barbara, CA 93108; (805) 969-7874. (NO FEEDBACK YET)

ExperLogo is a compiled Logo for the Macintosh. There are enhanced graphics and list-processing features. Applications can be run interpreted or compiled. (NO FEEDBACK YET)

ExperOPS5 is an expert systems-building tool for the Macintosh. It is a complete implementation of the OPS5 System and was designed for ExperTelligence by Science Applications International Corporation using ExperLISP. You are required to have ExperLISP, a Macintosh 512K, and an external disk drive. (NO FEEDBACK YET)

Miscellaneous Articles on Computer Languages

Assembly Language programs	A+ MAGAZINE	Mar. 85	p. 103
Assembly Language programming	A+ MAGAZINE	Feb. 85	p. 109
Mac Assembler	A+ MAGAZINE	Dec. 84	p. 135
MACFORTH	MACWORLD	Nov. 84	p. 68
The PostScript Language	MACWORLD	Feb. 85	p. 106
PostScript Graphics	A+ MAGAZINE	Mar. 85	p. 30
To C or Not To C	A+ MAGAZINE	Apr. 85	p. 87
MACFORTRAN	**MACAZINE**	**Jun. 85**	**p. 51**
Macintosh Languages	**A+ MAGAZINE**	**Jul. 85**	**p. 135**

Data Bases

Microsoft File is a sophisticated data base product that is well integrated with the Microsoft series of programs (Multiplan, Word, Chart). A more extensive review will be given in the next issue.

Microsoft File	**MACWORLD**	**May 85**	**p. 96**
Microsoft File	**INFOWORLD**	**Apr. 29, 85**	**p. 85**
Microsoft File	**A+ MAGAZINE**	**Jun. 85**	**p. 107**
Microsoft File	**ICON REVIEW**	**Summer 85**	**p. 9**

Filevision is a data base that allows the user to create a picture and then attach records and fields of information to various parts. Consider, for example, designing an on-screen picture of the seating plan in a theatre. You could ask questions such as: "Show all empty seats in the theatre. Bring up the record of who is sitting in Row 5, Seat 56." This package is limited only by the creativity of the user. Price: $195. Telos Software Products, 3420 Ocean Park Blvd., Santa Monica, CA 90405; (213) 450-2424.

Filevision (Telos)	**MACWORLD**	Jan. 85	p. 62
Filevision (Telos)	**POP.COMP.**	Mar. 85	p. 60
Filevision (Telos)	**INFOWORLD**	Dec. 10, 84	p. 49
Filevision	**A+ MAGAZINE**	**Jun. 85**	**p. 107**

FactFinder is made by Macware and is an electronic "desk drawer" that facilitates manipulation of data within the data base. (800) MACWARE.

FactFinder	**MACWORLD**	Feb. 85	p. 84
FactFinder	**INFOWORLD**	**Mar. 18, 85**	**p. 43**
FactFinder	**POP. COMP.**	**Aug. 85**	**p. 111**
FactFinder	**ICON REVIEW**	**Summer 85**	**p. 6**

Main Street Filer is a data-base management system that can handle 36 fields per record, 65,000 records per file. Can be used for customer/prospect lists, direct mail and renewal lists, appointments, inventory control, accounts payable and receivable reminder files, sales activity and follow-ups. This product has been out for a while so there should be a good deal of feedback available about it. Vendor: Main Street Software, One Harbor Drive, Sausalito, CA 94965; (415) 332-1274, or (800) 824-8757.

Mainstreet Filer	**INFOWORLD**	Aug. 6, 84	p. 57
Mainstreet Filer	**MACWORLD**	Jan. 85	p. 86
Mainstreet Filer	**A+ MAGAZINE**	**Jun. 85**	**p. 107**

1ST BASE is a relational data-base system from DeskTop Software Corporation, 228 Alexander Street, CN5287, Princeton, N.J. 08540; (609) 924-7111.

1st Base (DeskTop Software)	INFOWORLD	Dec. 12, 84	p. 55
1st Base (DeskTop Software)	MACWORLD	Jan. 85	p. 7
1st Base (DeskTop Software)	INFOWORLD	Dec. 31, 84	p. 36
1st Base	**A+ MAGAZINE**	**Jun. 85**	**p. 122**

PFS File and **Report** make up a simple-to-use data-base management package. Those who are experienced with the PFS Series on the Apple II will recognize the way in which this application is implemented. The basic idea is to prepare a data-input form that facilitates the creation of new records of information. Simple menus then allow for a variety of searching and reporting criteria. Software Publishing Corporation, 1901 Landings Drive, Mountain View, CA 94043; (415) 962-0191.

PFS:File	**MACWORLD**	Jan. 85	p. 81
PFS:File	**A+ MAGAZINE**	**Jun. 85**	**p. 107**

OverVUE is an information manager for the Macintosh developed by ProVUE Development Corporation. (714) 969-2431 (Calif.). (NO FEEDBACK YET)

OverVUE	**A+ MAGAZINE**	Feb. 85	p. 89
OverVUE	**A+ MAGAZINE**	**Jun. 85**	**p. 107**
OverVUE	**INFOWORLD**	**Apr. 1, 85**	**p. 44**
OverVUE	**INFOWORLD**	**Jul. 8, 85**	**p. 41**
OverVUE	**ICON REVIEW**	**Summer 85**	**p. 7**

Odesta Helix is an interactive information system made by Odesta. (800) 323-5423, or in Illinois, (312) 498-5615. (NO FEEDBACK YET)

HELIX	**INFOWORLD**	**Apr. 29, 85**	**p. 77**
HELIX	**A+ MAGAZINE**	**Jun. 85**	**p. 107**
HELIX	**ICON REVIEW**	**Summer 85**	**p. 5**

OMNIS 2 is a data-base program that will calculate, arrange, store, sort, and retrieve data. Data-base layout may have up to 9,600 characters and up to 120 fields. Includes a report generator (compatible with MacWrite). Organizational Software Corporation; (415) 571-0222 (Calif.). (NO FEEDBACK YET)

OMNIS	**A+ MAGAZINE**	Sep. 84	p. 7
OMNIS	**A+ MAGAZINE**	**Jun. 85**	**p. 107**
OMNIS 3	**A+ MAGAZINE**	**Jun. 85**	**p. 107**
OMNIS	**INFOWORLD**	**Jul. 15, 85**	**p. 18**

Brock Keystroke Data Base by Brock Software Products, Inc., is an electronic file cabinet that enables you to store, find, update, or print information. Has its own report generator. (815) 459-4210 (Illinois). (NO FEEDBACK YET)

MegaFiler is a data-base program that handles mailing lists, multiple file access, and integration with other Megahaus products, as well as the standard data-base functions. (619) 450-1230 (Calif.). (NO FEEDBACK YET)

MegaFiler	**A+ MAGAZINE**	**Jun. 85**	**p. 107**
MegaFiler	**INFOWORLD**	**Apr. 8, 85**	**p. 50**

DB Master is a very popular data-base that was first implemented on the Apple II series of computers. Available from Stoneware, Inc., 50 Belvedere St., San Rafael, CA 94901; (415) 457-1656.

DB Master	**MACWORLD**	Jan. 85	p. 85
DB Master	**INFOWORLD**	Nov. 19, 84	p. 57
DB Master	**A+ MAGAZINE**	**Jun. 85**	**p. 107**
DB Master for the Mac	**POP. COMP.**	**Jul. 85**	**p. 110**

MacLion is a relational data-base manager and applications development system for the Macintosh. It is produced by Computer Software Design, Inc., 1904 Wright Circle, Anaheim, CA 92806; (714) 634-9012. One of the unique features of this data-base is that it has a programming language built in. With this capability, a user can design a job-costing system, bibliographic retrieval system, or order entry system. Some of its other characteristics include: full featured relational data-base management system that allows multiple relational access to your data, a full-screen generator that allows multiple relation access for both inputting and retrieving data, a report writer that helps build reports with data from multiple relations, data transfer to many of the
other software programs available for the Macintosh, a data dictionary that maintains the names and descriptions of each file in one place, on-line help, and built-in backup and restore functions that facilitate making copies of your data.

MacLion	**INFOWORLD**	**May 27, 85**	**p. 47**
MacLion	**A+ MAGAZINE**	**Jun. 85**	**p. 107**

Speed Reader II is a Macintosh program that has already proven successful on IBMs, Commodores, and Apple IIs. Regular use of the program has been shown to double or triple the reading speed (as well as improve comprehension). The program takes advantage of all of the Macintosh features (pull-down menus, mouse use, icons, and on-line help). This program is well orchestrated and, with proper commitment from the user, can really improve the user's reading speed. This application should be quite popular in the college and university environment. For more information, contact Dr. Jan Davidson, Davidson & Associates, Inc., 6069 Groveoak Place #12, Rancho Palos Verdes, CA 90274; (213) 373-0971. (NO FEEDBACK YET)

Speed Reader II	ICON REVIEW	Summer 85 p. 22

MacTutor is an authoring system for the Macintosh. The package provides an interface for using pull-down menus, windows, and dialog boxes so that users can design their own applications. MacWrite and MacPaint can be used as part of the overall project-development effort. This package can be used to develop training lessons, supplementary course material, study guides, tutorials, and a variety of other tasks. Available from Computer Learning Systems, RFD 8, Box 375, Concord, NH 03301; (603) 783-4708.

Fonts

Fluent Fonts provides dozens of fonts for use in your word-processing applications. Two-disk set is $49.95 from Casady Company, P.O. Box 223779, Carmel, CA 93922; (408) 646-4660. (NO FEEDBACK YET)

Fluent Fonts	ICON REVIEW	Summer 85 p. 25

Soft Palette Font (Volume 1) contains a collection of 18 decorator fonts. There are borders and interior design symbols. Price $35. Vendor: Decision Science Software, Inc., P.O. Box 7876, Austin, TX 78713; (512) 926-4527. (NO FEEDBACK YET)

Professional Type Fonts comes with two disks. ONe disk contains fonts for text and the other contains fonts for headlines. These are modeled after the famous Mergenthaler and ITC typefaces (Times, Helvetica, Roman, and Optima). Sixteen fonts are provided in sizes from 12 point to 24 point (the headline fonts are larger). You need a Macintosh 512K. Prices: Text Fonts-$49.95; Headline Fonts-$69.95. Vendor: Kensington Microware Ltd., 251 Park Ave. S., New York, NY 10010; (212) 475-5200. (NO FEEDBACK YET)

Dayton Math Fonts contains four math fonts (over 700 characters) that are suitable for use in preparing technical manuscripts. Included are all of the standard mathematical symbols, fractions, Greek and Roman alphabets (with tildes, bars, and carets), special integrals, summations, and much more. Price: $29.95. Vendor: Plugh, Inc., 595 Royal Springs, Springboro, OH 45066; (513) 748-2423. (NO FEEDBACK YET)

UltraFonts is a disk with some new fonts for the Macintosh. There are two new packages: Technical and Business Fonts features a variety of fonts for engineers, scientists, doctors, and lawyers that include more than 100 symbols (two Greek language fonts, math symbols, correspondence quality text), UltraFonts Edition Two features 21 fonts in sizes ranging from 6 points to 36 points. There is a borders font, symbols font, international symbols, Macintosh icon font, and more. Price: $29.95 each, or both for $49.95. Vendor: 21st Century Software, Malon Products, Inc., 2306 Cotner Ave., Los Angeles, CA 90064; (213) 829-4436. (NO FEEDBACK YET)

Games

Ground Zero will be familiar to those who know the arcade game called Missile Command. You must destroy missiles that are heading for several cities that you are protecting. Play gets fast and furious as your skill improves. Lots of fun for video game addicts. The best scores are recorded on disk for posterity.

Airborne is a very exciting arcade-type game that continually challenges your skills. It is a little bit like the game Sabotage (which is familiar to many game players). This game lets you control an anti-aircraft gun and a mortar. You are being attacked by helicopters, infantry, tanks, paratroopers, missiles, jet planes, and cargo planes, just to name a few. Great graphics, excellent, realistic digitized sound. Everyone who plays seems to enjoy it. Available from Silicon Beach Software, 11212 Dalby Place, Suite 201, San Diego, CA 92126; (619) 695-6956.

Airborne	MACAZINE	Jun. 85	p. 47

Sargon III is a great way to play chess. It is, however, not easy to beat Sargon (turning off its opening-move library and selecting easy play gives you a fighting chance). The special features of this implementation (windows that track moves, instant replay, move retraction, libraries of openings and closings, piece movement using the mouse rather than notation, and much more) make this the best chess game around. Great for learners or experts.

Sargon III	MACWORLD	Apr. 85	p. 84
Sargon III	ICON REVIEW	Summer 85	p. 19

Trivia asks a lot of difficult questions and lets you know how you are doing along the way. The program is really a master of ceremonies. You don't enter the answer, you say it aloud and then ask Trivia to display the correct answer. Players in the game decide if your answer is close enough. There is a General Knowledge disk with 5,000 questions. You can be timed, prevent certain categories from being continually selected, and play at various skill levels. The five categories are entertainment, sports, geography, history, and literature. You can make up your own questions and answers if you wish (lots of potential with this). Price: $49.95. Vendor: Mirage Concepts, 4055 W. Shaw #108, Fresno, CA 93711; (209) 227-8369.

Through the Looking Glass used to be the game called ALICE. It is a program that was developed at Apple Computer during the early stages of the Macintosh project. You may have an early version of the game. The latest (and legitimate release) of the program is much better than the original. The basic idea is that you select a chess piece that you (in the role of Alice) then become. A game of real chess is played with no delay between moves. It's just you against the other player (the Macintosh). This is a fast game. The new release has several versions, including mutations, erosion, Mirror-Mouse, and Upside Down. In addition, you can create your own pieces so that the game becomes more "personalized." Lots of fun with this one. Price: $39.95. Vendor: Apple Computer, 20525 Mariani Ave., Cupertino, CA 95014; (800) 538-9696 or (800) 662-6238.

Through the Looking Glass	**MACWORLD**	Mar. 85	p. 85

Articles on Miscellaneous Games

Transylvania (Adventure game)	**A+ MAGAZINE**	Sep. 84	
Transylvania	**MACWORLD**	**May 85**	**p. 79**
Enchanter	**MACAZINE**	**Apr. 85**	**p. 45**
Sorcerer	**MACAZINE**	**Apr. 85**	**p. 45**
Load Runner	**MACAZINE**	**Apr. 85**	**p. 45**
Forbidden Quest	**MACWORLD**	**May 85**	**p. 76**
Hitchhikers Guide to the Galaxy	**MACWORLD**	**May 85**	**p. 76**
Millionaire	**MACAZINE**	**Apr. 85**	**p. 45**
Millionaire (Investment game)	**A+ MAGAZINE**	Sep. 84	
MacSlots (Slot Machines)	**MACWORLD**	Nov. 84	p. 80
MacJack	**MACWORLD**	Nov. 84	p. 80

Graphics/Design

Microsoft Chart is a business graphics package from Microsoft. It integrates well with Multiplan, Word, and File (other Microsoft products). This is an excellent package for creating and drawing graphs either by directly entering the raw data or by transferring it from a spreadsheet. The user can choose from bar charts, column charts, area charts, line graphs, pie diagrams, scatter diagrams, and combinations. Various statistics can be performed on the data (and created as a separate series). It is possible to plot a linear regression line of the data as well as an exponential growth curve. The final chart can be extensively enhanced with legends, titles, shadings, text, scaling, and a wide variety of other techniques. This is easy to learn and quick to use. Should be part of your library. Microsoft Corporation, 10700 Northup Way, Bellevue, WA 98004; (800) 426-9400.

Microsoft Chart	**MACWORLD**	May-Jun. 84	p. 72
Microsoft Chart	**INFOWORLD**	Jan. 14, 85	p. 56
Microsoft Chart	**MACWORLD**	**May 85**	**p. 40**

Presentation Graphics on the Macintosh by Lambert (Microsoft)

Slide Show Magician takes your MacPaint documents and arranges them into a slide show presentation. Anything you can put on a Macintosh screen can be used in the slide show. You can control how long each frame stays on the screen, or even let the show run continuously. There are 16 movie-type special effects. These include wipes, curtains, fades, and much more. This is a very easy package to use and really does allow you to create "magical" slide shows. You can place "buttons" on your slide, add text, animate text, use the mouse to point and click, and even let your "shows" be sent to someone else for running on their computer (even if they do not have Slide Show Magician). Many vendors use this product to display their products' features to potential customers. It may be a good addition to your software library. Price: $59.95. Vendor: Magnum Software, 21115 Devonshire St., Suite 337, Chatsworth, CA 91311; (818) 700-0510.

Slide Show Magician	**ICON REVIEW**	**Summer 85**	**p. 12**

ClickArt is a collection of picture disks. At present, there are three disks: (1) Personal Graphics (people, cartoons, arrows, and miscellaneous), (2) Publications (three-column layout guides, borders, maps, letterhead, and more), and (3) Letters (24 large alphabets). Vendor: T/Maker Graphics, 2115 Landings Drive, Mountain View, CA 94043.

Special Effects was developed by T/Maker Graphics (above) as a supplement to MacPaint. When installed on your MacPaint disk (easily done), you have four additional tools available for your use: (1) 360-degree rotation of text (a great addition by itself), (2) a distortion effect, (3) an ability to slant text and images, and (4) a tool to add perspective to a drawing. Well worth it for heavy MacPaint users.

ClickArt Pictures	**INFOWORLD**	Aug. 13, 84	p. 61

Buildings. Hayden Software Company has several Macintosh picture disks available for doing some very thorough designing. These are not merely "clip art" but rather "structural pieces" that can be assembled into buildings, landscapes, and so on. Currently available are daVinci: Buildings, Building Blocks, Commercial Interiors, Interiors, and Landscapes. Vendor: Hayden Software Company, 600 Suffolk Street, Lowell, MA 01853; (617) 937-0200.

MouseAround is a drawing tool you insert the mouse into to give you greater control, as well as a guide to facilitate drawing or tracing. It is a 12 inch by 12 inch plastic drawing-surface board with a built-in mechanism for holding the mouse. Vendor: FrontRunner Computer Industries, 316 California Ave., Suite 712, Reno, Nevada 89509; (702) 786-4600. (NO FEEDBACK YET)

MacTablet has just been received at this office. It is a graphics tablet that connects to the Macintosh that allows for very detailed drawing or tracing. It works with MacPaint, MacDraw, and a variety of other software. Utilizes a pen complete with buttons. It seems to perform as well as the mouse in normal situations and much better in detail drawing. More about this product next time. Available from Summagraphics Corp., 777 State St. Extension, Fairfield, Conn. 06430; (203) 384-1344.

VideoWorks is a package designed to help you animate the images on your Macintosh screen. It is a comprehensive package that includes a Master disk, a "movies disk" (with sample animations), and a disk with a lot of artwork on it in the form of MacPaint drawings. Pictures are brought into VideoWorks with a desk accessory called ArtGrabber (a very nice tool all by itself). You can also draw directly in VideoWorks. The documentation is excellent and guides you through the development of animation. We will be looking at this package more closely in the next issue. It is an excellent example of a program that takes full advantage of the capabilities of the Macintosh. Vendor: Hayden Software, 600 Suffolk Street, Lowell, MA 01854; (617) 937-0200.

VideoWorks	**A+ MAGAZINE**	**Aug. 85**	**p. 68**

Other Items of Interest on Graphics

MacPaint	**A+ MAGAZINE**	**Aug. 85**	**p. 143**
MacDraw	**MACWORLD**	**Jul. 85**	**p. 121**
MacTracks	**ICON REVIEW**	**Summer 85**	**p. 26**

Hardware

ThunderScan is a hardware attachment that can make any printed image into a detailed, high-resolution Macintosh graphic—turning the ImageWriter into an "image reader." The device replaces the ImageWriter ribbon cartridge that will scan any image you can roll into the printer and send it to the Macintosh. You can enlarge an image up to 400 percent or shrink it to 25 percent. The device is easy to set up, focus, and use. The software is well-written, MacPaintlike in its design, and even incorporates a new auto-scrolling feature when viewing a large picture. When the scanning is done, the gray scales are retained. You can then adjust the brightness and/or contrast to your liking. Works well for transferring images from magazines, pictures, photographs or what have you. Price: $229. (415) 254-6581 (Calif.).

ThunderScan	**MACAZINE**	**Apr. 85**	**p. 10**
ThunderScan	**MACWORLD**	**Apr. 85**	**p. 76**
ThunderScan	**A+ MAGAZINE**	**Aug. 85**	**p. 136**

Mac•Turbo•Touch by Assimilation Process is a track-ball input device for the Macintosh. It can be used instead of the mouse or right along with it (the mouse plugs into the back of the Turbo Touch). The Turbo Touch features two buttons and a track ball that give surprisingly good control over cursor movement. It's not great for fine drawing, but certainly provides a faster way to move the cursor around the screen. Try one out at your dealer. Price: $129. (800) MAC-5464, or in California (800) 421-0243, or in Canada (404) 446-0797.

Mac Turbo Touch	**A+ MAGAZINE**	Apr. 85	p. 72

MacStation by MicroRain is a stand with storage space for the Macintosh, ImageWriter, and external disk drive. (800) 547-4000, Dept. 410, or in Oregon or outside the U.S.A., (503) 684-3000, Dept. 410. (NO FEEDBACK YET)

MacDrive by Tecmar, Inc., can be a 10-megabyte fixed hard disk or a 5-megabyte removable hard disk (with an option of adding five more megabytes). Phone: (216) 349-0600 (Ohio). (NO FEEDBACK YET)

OmniDrive, a network-ready hard disk, by Corvus Systems, Inc. Price: $1,795 for the 5.5-megabyte model. (408) 559-7000 (Calif.). (NO FEEDBACK YET)

Hard-Disk Drives	**A+ MAGAZINE**	Dec. 84	p. 116
Hard-Disk Drives	**MACWORLD**	Dec. 84	p. 70
Hard Disk Drives for Mac	**POP. COMP.**	Apr. 85	p. 100
Hard Disk Drives for Mac	**ICON REVIEW**	**Mar. 85**	**p. 28**

Hyperdrive is a hard disk that is built into your Macintosh. It stores 10 megabytes of data, and is extraordinarily fast. It transfers data at a 5-Mbit-per-second rate—up to seven times faster than external drives. Files can be divided up into 32 drawers of any size you wish. Resizing takes place automatically. Works quite well with the Macintosh Finder. More on this product next issue. General Computer Company, 215 First Street, Cambridge, MA 02142; (800) 422-0101. Consortium pricing available.

Hyperdrive Hard Disk	**A+ MAGAZINE**	Mar. 85	p. 15

The Keeper is a hard-disk system made for the Macintosh by Micro-Design of Austin, Texas. Built-in printer buffer; runs four to six times faster than floppy disks. Adds up to 33 megabytes of storage. (800) 531-5002, or in Texas, (512) 441-7890. (NO FEEDBACK YET)

The Bernoulli Box is a cartridge disk system made by IOMEGA Corporation of Utah (1821 West 4000 South, Roy, Uah 84067). Has 5-megabyte removable cartridges. (800) 556-1234, X215, or in California, (800) 441-2345, X215. The Bernoulli Box uses highly reliable, easily transportable, 5-megabyte cartridges. This allows users who share Macintoshes or peripherals to "take their data files along with them." IOMEGA has some very attractive pricing arrangements for colleges and universities. This hard disk was used to help prepare Volume 1, Number 1 of **Wheels for the Mind**. It worked without any problems whatsoever, was carted around, used with a single user, connected to AppleTalk, and performed as advertised.

The Bernoulli Box Network Server is a high-performance, mass-storage subsystem using two 10-megabyte removable cartridge drives developed by IOMEGA. It has been designed to interface with the AppleTalk network. The server has been carefully designed to provide the benefits of mass storage to multiple users. This is accomplished by partitioning the disk cartridges into 1-megabyte multiples that a user may select from. These partitions can be password protected. This server allows any user to have multiple partitions on the Macintosh at one time but no partition may be used by more than one user at the same time. To back up 10 megabytes requires only about 4 1/2 minutes. (NO FEEDBACK YET)

Composite Video Adapter from Mentauris connects the Macintosh to a wide range of commercial video monitor and projection equipment. (512) 396-1565 (Texas). (NO FEEDBACK YET)

MACQUISITION is a set of tools for collecting and logging data from laboratory instruments and industrial sensors. The user can define an application using a simple spreadsheet (right now, Multiplan) template. Data is then automatically collected, analyzed, charted, and reported. Macquisition uses the Taurus One/05 data-acquisition and control peripheral. This unit interfaces with a wide variety of signals, including analog input, digital input/output, analog output, and counters. (There are 16 analog input channels and 16 digital input/output channels.) The unit offers 12-bit resolution on analog inputs and outputs with analog input gains from 1 to 1,000. Systems begin at $2,595 without a Macintosh and can be configured with a variety of options. Contact the vendor directly for information about pricing, discounts, multiuser systems, and the like. There will be a more extensive review with feedback from some Consortium test sites in the near future. Small Business Computers of New England, 4 Limbo Lane, P.O. Box 397, Amherst, NH 03031; (603) 673-0228.

MouseHouse is, quite simply, a holder for the Macintosh mouse. It is used when the machine is not in use. It attaches to either side of the Macintosh with removable Velcro strips. The MouseHouse matches the color and contours of the mouse and looks like an integral part of the machine's exterior. Suggested retail price is $5.95. Contact FrontRunner Computer Industries, 316 California Ave., Suite 712, Reno, NV 89509; (702) 786-4600.

Print 'n' Switch allows you to use both an ImageWriter and a letter-quality printer with your Macintosh. It plugs into the printer port on the rear of the machine (leaving the modem port free to be used by other peripherals). The ImageWriter and letter-quality printer plug directly into a small Print 'n Switch box. At the press of a button, either printer is activated. Works with most letter-quality printers. Price: $119.95. FrontRunner Computer Industries, 316 California Ave., Suite 712, Reno, NV 89509; (702) 786-4600. (NO FEEDBACK YET)

MacEnhancer lets Macintosh users connect additional peripherals. It adds one IBM-type connector for parallel printers, and two IBM-type connectors for serial printers, modems, and host connections. The package includes printer-driver and terminal-emulation software. Supports almost all dot-matrix printers, but only the Epson LQ1500 and Toshiba P1351 letter-quality printers at present. Price: $249. Microsoft Corporation, 10700 Northup Way, Box 97200, Bellevue, WA 98009. (NO FEEDBACK YET)

MacEnhancer	**A+ MAGAZINE**	Mar. 85	p. 82

Miscellaneous

Mail Center is a program that allows Macintosh users connected via the AppleTalk Personal Network to communicate by means of computerized mail. Letters, memos, charts, graphs, spreadsheets, and programs created on a Macintosh may be sent to any other Macintosh. The information may be sent without interrupting the person receiving the mail. Mailbox icons identify where mail can be sent and a "mail receiver" desk accessory actually receives any mail that is sent to that user. A receive log keeps a list of all mail received by a given mailbox. Videx, Inc., Corvallis, OR 97330; (503) 758-0521 (NO FEEDBACK YET)

The DNA Inspector is a set of Macintosh programs used for analyzing DNA sequences. In effect, the programs, written in Microsoft BASIC, allow recombinant DNA experiments to be designed with the computer before they are attempted in the lab. Besides being of value to the scientist as a tool, the programs can be used by the nonscientist to learn about the techniques of modern molecular biology, or as a teaching tool by educators. The programs are available for $109 from TEXTCO. The package includes the DNA Inspector Programs, the DNA sequence of several recombinant DNA vectors (pBR322, M13 phage, and SV40), and instructions. User must supply Microsoft BASIC. (A Version 2 offering many new features is under development and should be available in the summer. Add $5 for overseas shipment. Textco, 27 Glison Rd., W. Lebanon, NH 03784 (NO FEEDBACK YET)

MacAuthor authoring software is an entire course development package, a do-it-yourself set of curriculum formats into which educators can "plug in" their subject materials. There is also an enhanced version (Mentor Curriculum Editor & MacVideo) that links an optical videodisc recorder/player with the Macintosh. This combination allows for audiovisual stills and motion to be shown on a TV monitor alongside text and graphics on the Macintosh. Depending on the options you select, this can be an expensive system. However, it may provide your facility with an effective way to deliver certain types of course material. Initial prerelease versions have been highly regarded.

Scientific Analysis Program is used to solve both numerical and statistical problems. It requires Microsoft BASIC. With the two disks provided, the user can solve linear, nonlinear, complex, and sets of simultaneous differential equations. In addition, the program does linear regression and curve fitting, calculates definite integrals, and solves matrix equations. Price: $35. Vendor: PCA Software, P.O. Box 1231, Arlington, TX 76010; (817) 860-5498. (NO FEEDBACK YET)

MusicWorks is great fun—especially for those skilled in music. However, anyone can learn to use this program and have a good time. You can edit, compose, and then play your music. This can be done in MacPaintlike fashion on a predesigned staff, or you can use a facsimile of a piano. There are four voices available, 10 instruments, and a variety of playing styles. Lots of "data disks" of music are appearing at user group meetings and as freeware. When your Macintosh is connected to an external speaker (via the built-in audio jack), it really sounds great. Price: $79.95. Vendor: Hayden Software, 600 Suffolk St., Lowell, MA 01854; (800) 343-1218. (NO FEEDBACK YET)

MusicWorks	**MACWORLD**	**Jun. 85**	**p. 74**
MusicWorks	**MACAZINE**	**Mar. 85**	**p. 34**
MusicWorks	**A+ MAGAZINE**	**May 85**	**p. 113**

SongPainter is a music program that comes with built-in chords, scales, and an orchestra of instruments. The user can combine instruments, pitch, rhythms, and chords using a unique picture-painting scheme. There are some special effects, as well as accents for rhythm, adjustable tempo and volume, and a Help screen (when needed). Vendor: Rubicon Publishing, 6300 La Calma Dr., Suite 100, Austin, TX 78752; (512) 454-5004 (NO FEEDBACK YET)

Music Related

Concertware	**MACAZINE**	**Mar. 85**	**p. 29**
Concertware	**MACWORLD**	**Jun. 85**	**p. 53**
MusicType	**MACAZINE**	**Mar. 85**	**p. 34**
Music Character Set	**MACAZINE**	**Mar. 85**	**p. 34**
MAC Music	**MACAZINE**	**Mar. 85**	**p. 34**
Professional Composition	**MACAZINE**	**Jun. 85**	**p. 12**

MAC•MEMORY•DISK by Assimilation Process lets you allocate a portion of the RAM resident in your Macintosh 512K and treat it like a disk. Significantly increases the speed of many applications. Price: $29. (800)MAC-5464 or in California, (800) 421-0243 or in Canada, (404) 446-0797.

Mac Memory Disk	**A+ MAGAZINE**	Mar. 85	p. 86
RAM DISK	**MACWORLD**	**Jun. 85**	**p. 32**
Mac Memory Disk	**ICON REVIEW**	**Summer 85**	**p. 26**

MacLabeler helps you keep track of what's on your disks. This application creates labels that will automatically list up to 20 file names. You can choose whether a file is included on the list or not. A helpful utility. Price: $49.95. Vendor: Ideaform Inc., P.O. Box 1540, Fairfield, IA 52556; (515) 472-7256. (NO FEEDBACK YET)

MacLabeler	ICON REVIEW	Summer 85	p. 26

MacCalendar by Videx, Inc. is a time management tool. It combines the alarm clock with a calendar and a notepad. It can be installed as a desk accessory to be available whenever you need it. Attractive and easy to use, this one is only useful if you are disciplined enough to keep entering your appointments and regularly check on their status. Price: $89. (503) 758-0521.

P/C Privacy is a data encryption system that protects your text or graphics files from being viewed by others. The user "decodes" an encrypted file by entering a key word, which can be changed. Price: $140. Vendor: MCTel, Inc., 3 Bala Plaza E #505, Bala Cynwyd, PA 19004; (800) 628-3584, or in Pennsylvania, (215) 668-0983. (NO FEEDBACK YET)

SmoothTalker is an exciting product that converts plain English text, from either the keyboard or a MacWrite text document, into high-quality and natural-sounding speech. Mouse-driven commands allow you to specify the speed, pitch, tone, and volume to produce both male and famale voices. A dictionary can be created with words that SmoothTalker doesn't speak particularly well. Several software developers are incorporating this product into applications that will soon reach the market. A demonstration is available 24 hours a day by calling (714) 536-0086. The technology can be obtained in two ways: as a stand-alone retail product, and as licensable software modules for the developers and universities that can be embedded within the author's own programs. Some changes currently under way include enhanced phonetic capability, faster conversion, and use as a "driver" from other language programs. First Byte, 2845 Temple Avenue, Long Beach, CA 90806; (213) 595-7006, (800) 523-8070, or in California, (800) 624-2692.

Smooth Talker update.
The latest version of SmoothTalker came out in late May 1985. Enhancements include: two voices, male and female; ability to call SmoothTalker from your own programs; faster text-to-speech conversion on Macintosh 512K; ability to insert timed delays anywhere in a document being spoken; ability to automatically repeat passages; ability to show phonetic equivalents; and a new on-line user's guide.

SmoothTalker	MACAZINE	Mar. 85	p. 49

Spreadsheets

Multiplan by Microsoft is a spreadsheet that is unusually easy to use. This application takes advantage of the Macintosh user interface to provide a very powerful spreadsheet with many built-in functions. Microsoft Corporation, 10700 Northup Way, Bellevue, WA 98004; (800) 426-9400.

Multiplan	MACWORLD	Apr. 84	p. 72
Investing with Multiplan	MACWORLD	Apr. 84	p. 94
Multipan and Chart	MACWORLD	Sept./Oct. 84	
Multiplan	MACWORLD	Dec. 84	p. 142
Multiplan (Financial Planning)	**MACWORLD**	**May 85**	**p. 92**
Spreadsheets for the Mac	**POP.COMP.**	**Aug.85**	**p. 12**
Quartet	**ICON REVIEW**	**Summer**	**p. 4**
JAZZ	**ICON REVIEW**	**Summer**	**p. 1**
ENSEMBLE	**ICON REVIEW**	**Summer**	**p. 3**

Multiplan Made Easy by Ettlin (Osborne/McGraw-Hill)

Telecommunications

MacTerminal is a data communications program from Apple that, when used with a modem, allows the Macintosh to emulate other data terminals (IBM 3278, DEC VT100, DEC VT52, and TTY). It provides access to a variety of electronic information services, and data can be easily transferred back and forth between your microcomputer and a mainframe. Available from Apple Computer, Inc., 20525 Mariani Ave., Cupertino, CA 95014; (800) 538-9696.

MacTerminal	MACWORLD	July/Aug. 84	p. 64

Mac Telecommunications by Erickson/Sayre (Osborne/McGraw-Hill)

The Apple Modem is a hardware product available from Apple for use in making the telephone link between your Macintosh microcomputer and a mainframe. Apple Computer, Inc., 20525 Mariani Avenue, Cupertino, CA 95014 (800) 538-9696.

Apple Modem/MacTerminal	**A+ MAGAZINE**	**Mar. 85**	**p. 118**
Apple Modem 1200	**MACWORLD**	**Jul/Aug.84**	**p. 64**

Telecommunications Related

PC TO MAC AND BACK	**INFOWORLD**	**Mar. 18, 85**	**p. 47**
MACPhone	**COMP.&ELEC.**	**Mar. 85**	**p. 38**
MACMODEM	**MACWORLD**	**Apr. 85**	**p. 94**

Mac•Daisy Wheel•Connection by Assimilation Process can tie the Macintosh to the Apple Daisy Wheel Printer, the Brother (HR series), the C-Itoh (Starwriter), the Daisywriter, the Diablo, the NEC Spinwriter, and the Qume (Letterpro and Sprint II Series). This is a very easy program to learn and it works well. Price: $99. (800) MAC-5464, or in California, (800) 421-0243, or in Canada, (404) 446-0797.

NEC Information Systems, Inc. matches the Macintosh with a Spinwriter printer. (800) 343-4419, or in Massachusetts, call (617) 264-8635. (NO FEEDBACK YET)

Word Processing

Mac•Spell•Right by Assimilation Process helps correct spelling and provides a thesaurus for your use. Works only with the new disk-based MacWrite. Easy to use. Price: $89. (800) MAC-5464, or in California (800) 421-0243, or in Canada, (404) 446-0797.

Mac Spell Right	A+ MAGAZINE	Feb. 85	p. 100
Mac Spell +	ICON REVIEW	Summer 85	p. 10

Hayden: Speller is a spelling-checker program that works with either MacWrite or Microsoft Word. It is not necessary to switch back and forth between it and your application. Its dictionary contains over 22,000 entries; you may also create dictionaries of your own. Price: $79.95. Vendor: Hayden Software, 600 Suffolk St., Lowell, MA 01854; (800) 343-1218. (NO FEEDBACK YET)

ThinkTank is an idea processer that provides an outline format for you to "arrange your ideas." Great for preparing outlines of research papers, reports, articles, or to-do lists. This is not a full-fledged word processor and does not (as far as we know) interface with one (such as MacWrite). Living Videotext, Inc. in Mountain View, California; (800) 556-1234, X213, or in California, (800) 441-2345, X213. (NO FEEDBACK YET)

ThinkTank 512	A+ MAGAZINE	May 85	p. 102

MegaMerge works with MacWrite to provide the capability to create and merge mailing lists with documents, print mailing labels, and chain documents together so they print as one long document. Available from Megahaus. (619) 450-1230. (NO FEEDBACK YET)

Microsoft WORD is a very powerful word-processing program from Microsoft Corporation. It seems to have some significant advantages over the current versions of MacWrite. Additional information and product comparisons will appear in the next issue.

Some features in Microsoft Word and not in MacWrite:

- Footnoting capability
- Paragraph formats
- Built-in glossary
- Multiple-column formats
- List processing (mail merge)
- Multiple windows (documents) on screen
- Mouse selection shortcuts
- Built-in HELP feature

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